INPUT

MARKET FORECAST

U.S. Equipment Services Market

1994-1999

U.S. Market Analysis Program

OCTOBER 1994

U.S. Equipment Services Market

1994-1999

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Abstract

This report on the *U.S. Equipment Services Market, 1994-1999*, provides information on the size and challenges facing vendors of equipment services in the U.S. Growth estimates are provided for a five-year forecast period. The market is divided into two segments, manufacturer-supplied services and independent maintenance organization (IMO) services. Information on the size and growth of both are discussed.

The report provides information on the key issues, trends and user requirements driving the growth of equipment services and causing the significant changes taking place in this market in vendor services.

The report has 66 pages and 36 exhibits.

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U.S. Information Services Market Analysis Program

U.S. Equipment Services Market, 1994-1999

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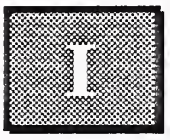

Report Objectives and Organization

A
Report Objectives

Equipment services vendors provide a service that is more vital than usually recognized by many users or even vendors of information systems and services. Computer manufacturers must make sure that each unit they sell has adequate maintenance service in all locations, from their own offices or those of reliable third-party vendors, for a number of reasons:

- Computer manufacturers have learned that high levels of continuous operation of equipment based on equipment reliability and sensitive maintenance support is necessary to support sales.
- In addition, manufacturers have learned that personnel supplying maintenance services can bring additional services and products to the attention of users. Several vendors use maintenance personnel to develop interest in or market services.
- Equipment services are a major source of revenue or equally significant losses, if revenue cannot cover costs.
- Equipment services can be part of a larger strategy for supplying continuous services to users, including recovery and backup services and even systems operations outsourcing.

This report has been written to meet the market information needs of various types of vendors interested in the equipment services market. It analyzes and forecasts the U.S. market for equipment services, which includes equipment maintenance and

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environmental services, whether supplied by manufacturers of computing equipment or independent maintenance organizations (IMOs) and depot or fourth party maintenance suppliers.

This market is analyzed from the perspective of the services provider and the platform for which service is provided. As noted above, service providers include computer manufacturers, IMOs or third-party organizations and fourth-party suppliers or depot maintenance providers. Some computer manufacturers supply third- and fourth-party maintenance for equipment other than their own.

- Computer manufacturers can set up separate IMOs to handle maintenance of equipment other than their own. They can also expand the services offered through their regular maintenance service operation to include equipment of other vendors.

- Third- and fourth-party services can also be sold to other vendors. A group of IMOs and computer manufacturers now offers maintenance service from depots to other maintenance vendors or users.

The sale of additional maintenance or other equipment services by computer manufacturers can add to their revenues or help cover costs, as well as provide additional marketing paths, as noted.

An updated review of the performance of the equipment services market as analyzed in this report is shown in Exhibit I-1. The growth of the overall equipment services market and IMO business is being held down by the decline in mainframe and midrange business from 1994 to 1999. Despite this negative impact, some segments of the market, such as workstation maintenance, environmental services and other non-equipment services delivered by maintenance vendors are growing at significantly high rates and offer real opportunities to adroit vendors.

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Exhibit I-1

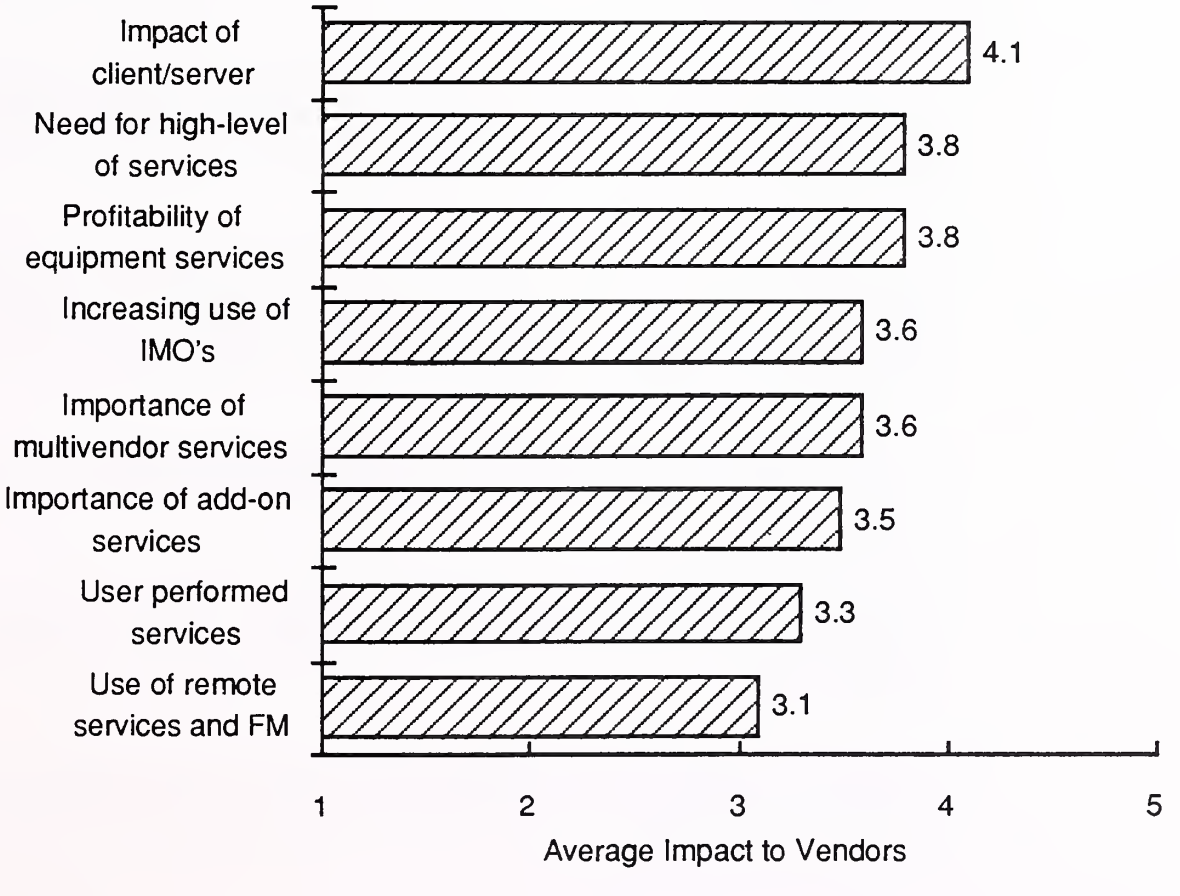
Equipment Services Market Growth

Growth of market in 1993	From $16.1 to $17.2 Billion
Projected growth of market, 1994 to 1999	From $18.2 to $22.8 Billion (5% CAGR)
Growth of IMOs, including on-site and depot or fourth-party maintenance (FPM)	5% CAGR
Growth of environmental services, 1994 to 1999	17% CAGR
Growth of other (non-equipment services) offerings, 1994 to 1999	18% CAGR

Major vendor issues and trends covered in the report are listed in Exhibit I-2.

Exhibit I-2

Major Vendor Issues



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- Since the last report, the impact of client/server and network technology has become a major concern of equipment services vendors.

- The significant need of equipment services to computer manufacturers, the profitability of services and the increasing use of IMOs remain highly important to the vendor.

The report contains forecasts of equipment services markets, and discussion of environmental and other services (nonequipment services such as consulting, operational aid and disaster recovery) that are sold together with equipment maintenance services.

B
Organization

There are six chapters in this report (including this introductory one) outlined below:

- In Chapter II, a breakdown of the 1993 market by platform is provided together with illustrations of the growth of the market from 1994 to 1999.

- In Chapter III, factors affecting growth in the market are discussed and a detained forecast of the entire market is developed—together with forecasts by platforms and for the IMO portion of the market.

- Competition by platform and among IMO vendors is covered in Chapter IV.

- Market issues, trends and factors that vendors and users feel are important in analyzing this market are discussed in the Chapter V.

- Chapter VI contains findings and recommendations for vendors entering or involved in the equipment services market.

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C
Forecast Methodology

To create market forecasts, INPUT conducted structured surveys with information from 20 vendors and 35 users of equipment services. Data was also obtained from vendor reports and company press releases as well as from articles in the trade press. In addition, INPUT obtained useful information from its ongoing research of up to 3,000 information systems users.

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II

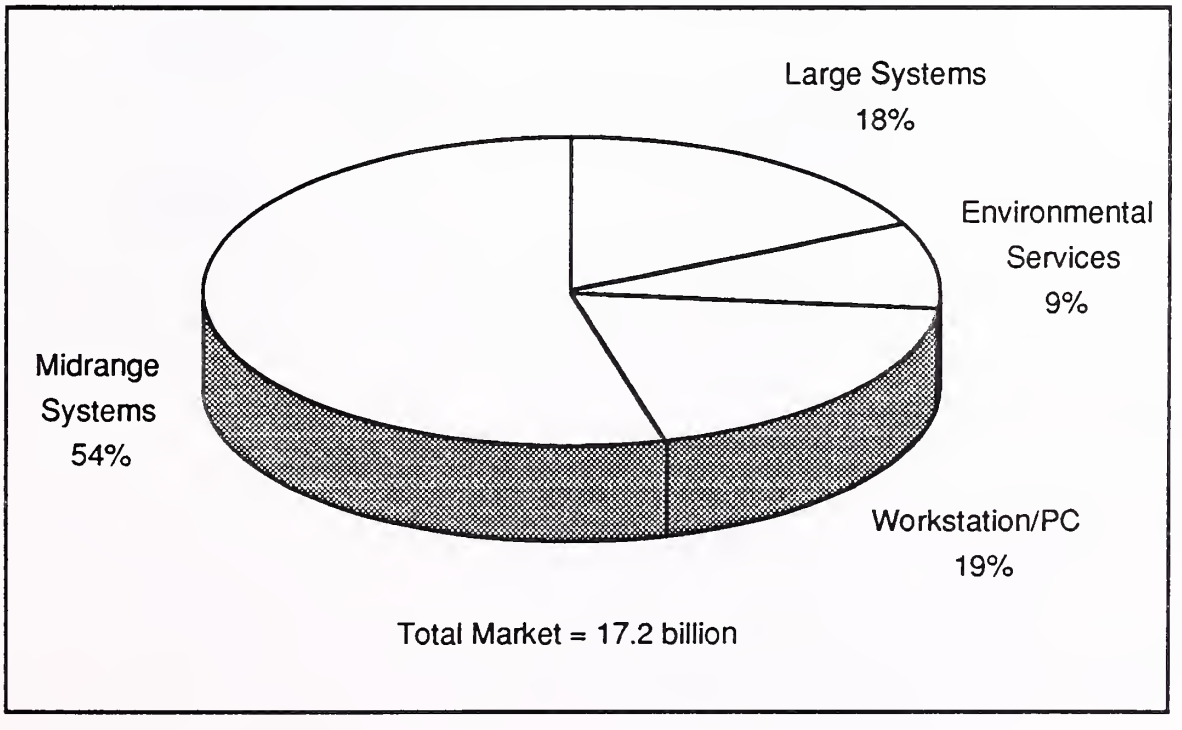
Equipment Services Market

A
Overview of 1993 Market

The equipment services market illustrated in Exhibit II-1 still is dominated by services to midrange platforms, as it was in the recent past and will continue to be through the forecast period. During this period, service to workstation/PC platforms and environmental services will be the most rapidly growing market segment.

Exhibit II-1

1993 U.S. Equipment Services Market



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- The percentage of total market services for large systems including mainframe and supercomputers, will fall from about 18% to 13%.

- Some users of mainframe computers report a concern about the availability of mainframe services in the future as a result of this trend. Most believe that many vendors will expand their services to cover the full range of client equipment .

Several qualifications must be stated in regard to Exhibit II-1 and other exhibits in this report:

- It is difficult, almost impossible, to divide the equipment maintenance categories between platforms when multiple systems of different platform sizes are connected by complex networks. Expenditures for these systems and their network components are allocated between platforms in order to analyze the market.

- The forecast does not include expenditures for services, such as disaster recovery and operational aid that are provided by equipment services vendors. These are part of other information services and not part of the equipment services market. However, they will be discussed further since they are important to a number of the vendors in this market.

The total market for equipment services in the U.S, shown in Exhibit II-1, reached $17.1 billion in the U.S. in 1993, about 7% above the level reached in 1992.

- Although revenues for some vendors fell, expenditures for equipment maintenance for all platforms shown in Exhibit II-1, as well as expenditures for environmental services, rose in 1993.

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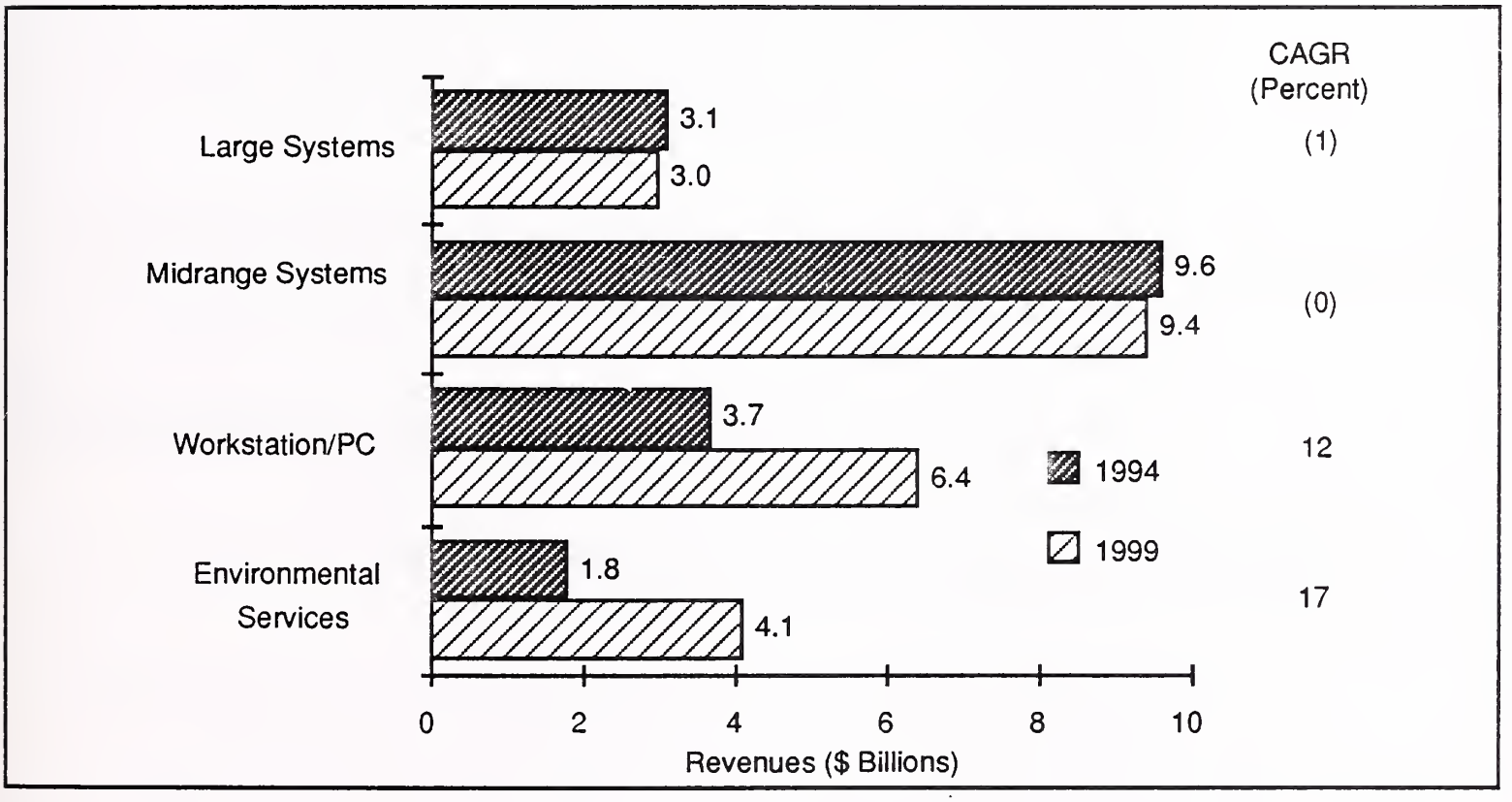
B
Forecast Growth 1994-1999

This is a time of significant change in equipment services and in the information systems industry. The use of mainframes is decreasing at many sites through downsizing and consolidation. One major bank has reported that the number of mainframes in use was declining from 15 to 5. This is reflected in negative growth for equipment services expenditures for mainframe systems. Equipment services expenditures for mainframe systems will be less in 1999 than they were in 1994 as shown in Exhibit II-2.

Exhibit II-2

U.S. Equipment Services Market Growth, 1994-1999



Although expenditures for midrange systems remain significant, use of equipment services for this platform will also decrease between 1994 and 1999 as Exhibit II-2 indicates. The factors involved in this decrease include increased reliability of midrange systems, the appearance of smaller versions of midrange equipment and downsizing.

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- Nevertheless, midrange systems will contribute the largest share of equipment services expenditures through the planning period. In 1999, equipment services for midrange systems will account for more than 40% of the total market.

- The volume of equipment services revenue for midrange systems during the 1990s is due to the successful sales of midrange systems such as the AS/400 and DEC and HP equipment in the late 1980s and early 1990s.

Although the use of workstation/PC equipment and client/server technology is becoming dominant in the use of information systems, the impact of this technology will not have as significant an effect on revenues from equipment services. This segment will represent about 28% of the revenues by 1999. This means that vendors interested in maintaining a leading position in equipment services revenues will have to maintain strength in older, midrange capabilities as well as gain capabilities in support of newer client/server technology.

However, the major sources of new revenue during the planning period will be the sale of services for workstation/PC equipment, environmental services and for a number of other services not related to the traditional maintenance business.

- Environmental services are growing at a faster rate than maintenance services for computing equipment.

- Environmental services will account for more revenue than mainframe maintenance by 1999.

Equipment services market forecasts are made for the services of computer manufacturers and independent maintenance organizations (IMOs), although some manufacturers also have an IMO organization. The business growth that will occur for IMOs from 1993 through 1999 is shown in Exhibit II-3.

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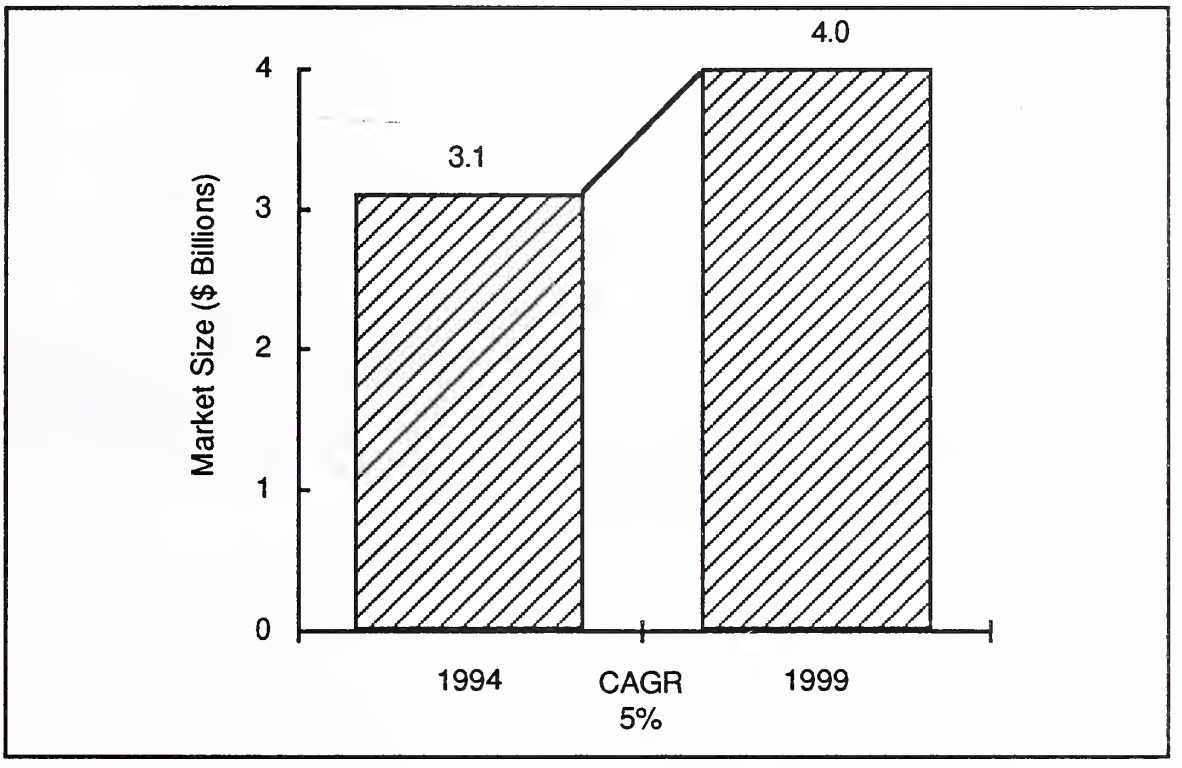
Exhibit II-3

U.S. Independent Maintenance Market, 1994-1999



C
Leading Service Providers

Although large computer manufacturers are still the major factor in the equipment services market as shown in Exhibit II-4, the share contributed by smaller vendors increased in 1993.

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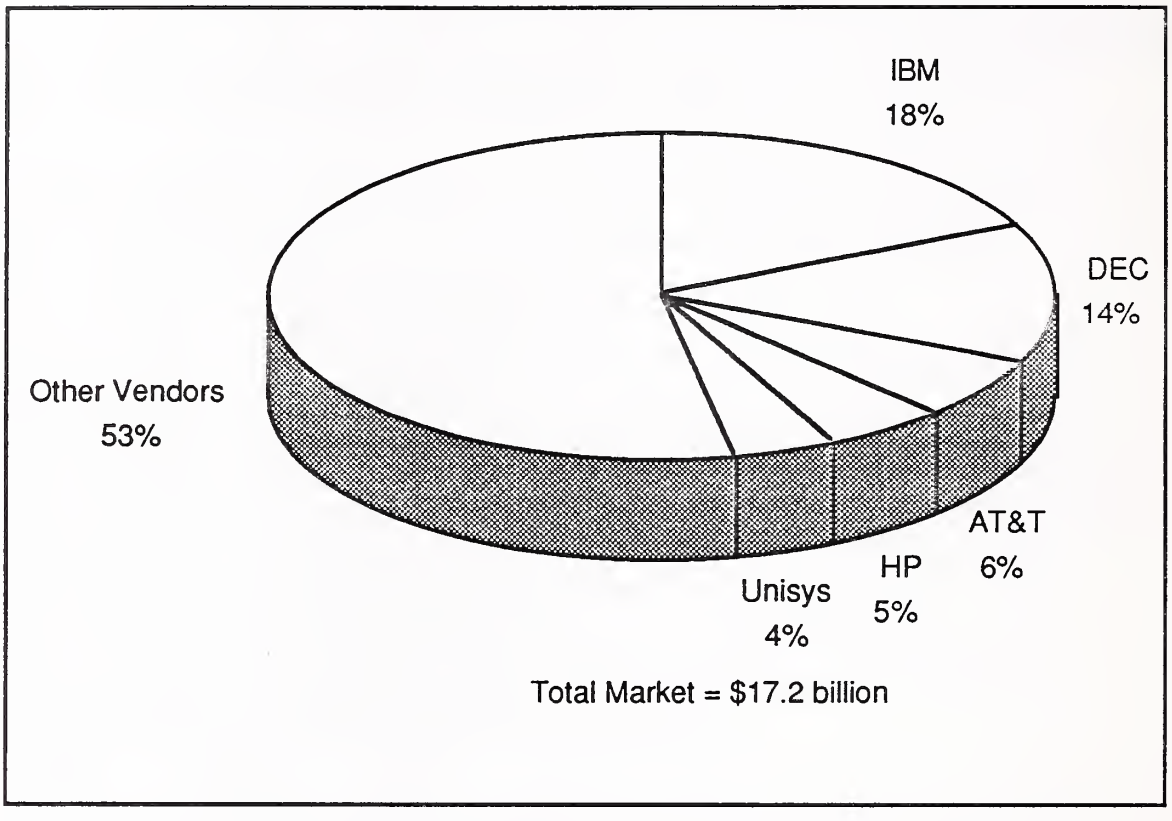
Exhibit II-4

Leading U.S. Equipment Service Providers, 1993



- The two largest vendors in this market are still IBM and DEC, but their combined share of total U.S. expenditures has decreased to less than one-third of the market in 1993.
- The vendors other than IBM, DEC, AT&T, Unisys and HP now control more than one-half of the market.

IBM's decrease in market share is partially due to a reclassification of some equipment services revenues into other, more appropriate services. As INPUT has pointed out in the past, it is an established strategy of equipment services providers to provide additional services needed by customers.

IBM remains the largest factor in the equipment services market, delivering a significant portion of services in all three platform markets as shown in Exhibits II-5, II-6 and II-7. Other vendors including Unisys, DEC and HP are major players in only one or two markets.

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Exhibit II-5

Leading Large Systems Service Providers, 1993

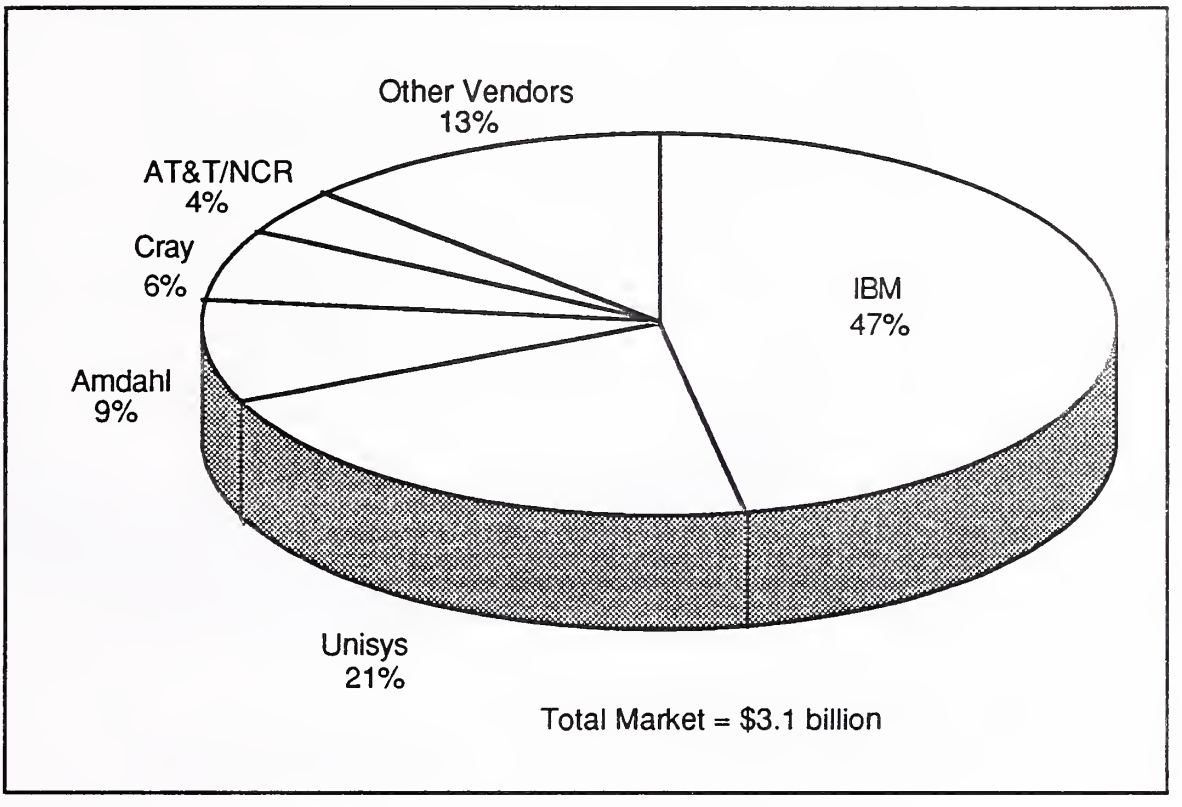

Exhibit II-6

Leading Midrange Systems Service Providers, 1993

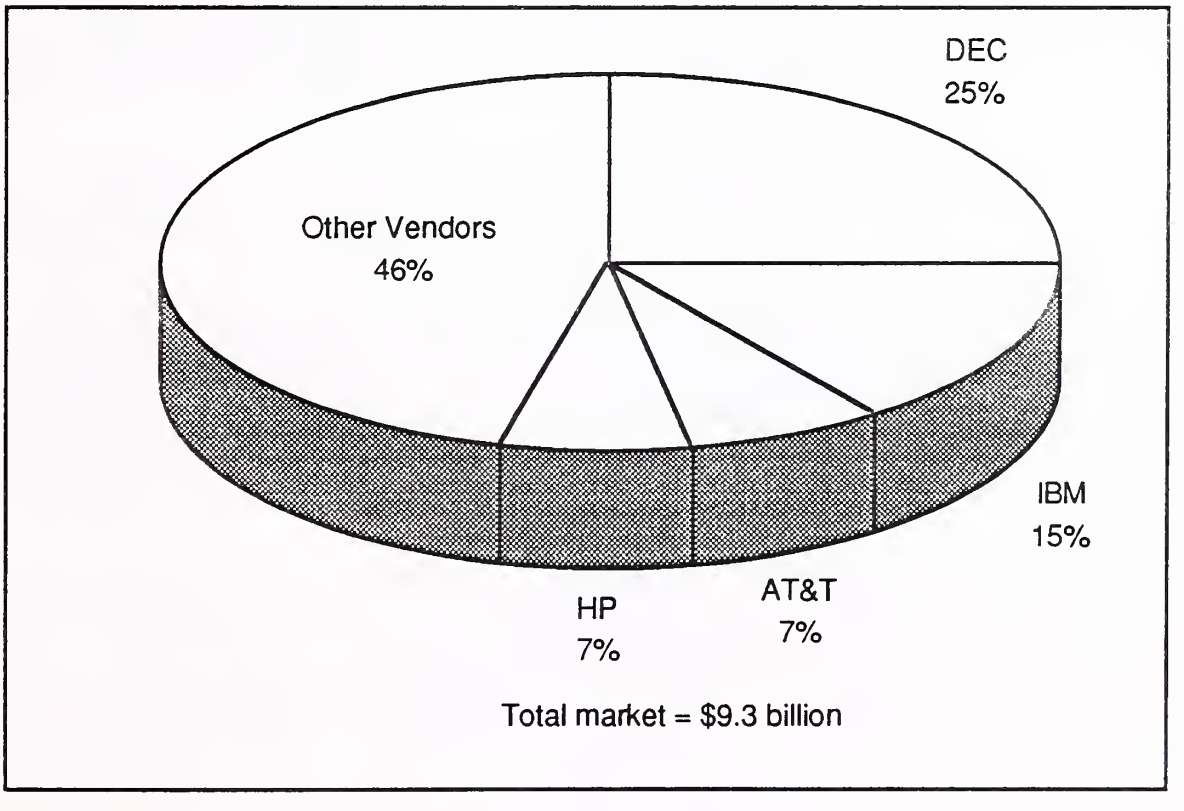

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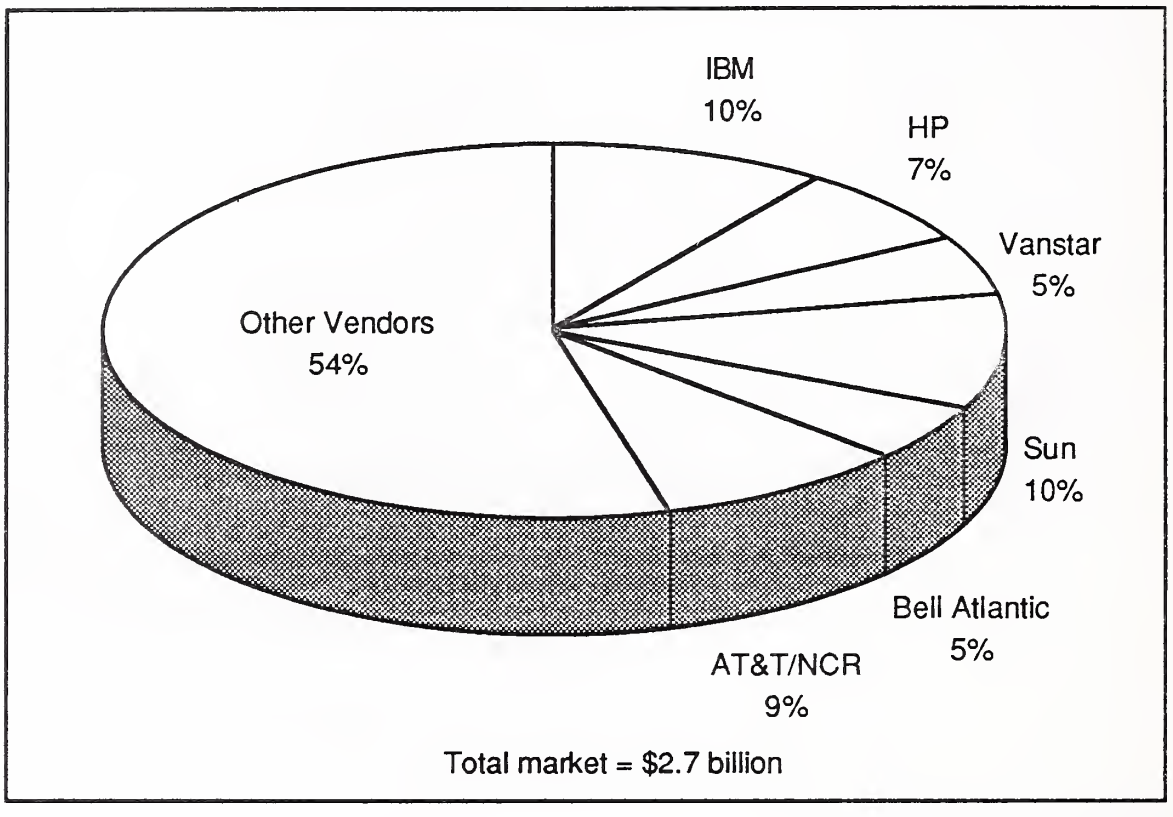
Exhibit II-7

Leading Workstation/PC Service Providers, 1993



- Unisys is a leader in the large systems market and provides equipment services for midrange and workstation products as well.

- AT&T provides services in all three platform markets, although it is a major supplier in only the midrange market.

As shown in Exhibit II-7, the workstation/PC market is the only one where there are major suppliers other than manufacturers. Bell Atlantic Business Systems Services, the subsidiary of an RBOC, and Vanstar (formerly Computerland) as well as JWP (the subsidiary of a utility) offer IMO services in this market.

Exhibit II-8 indicates a correlation with the size of computer platforms between the leading services vendor's equipment market share and the computer manufacturers providing these services. The share is larger for bigger platforms.

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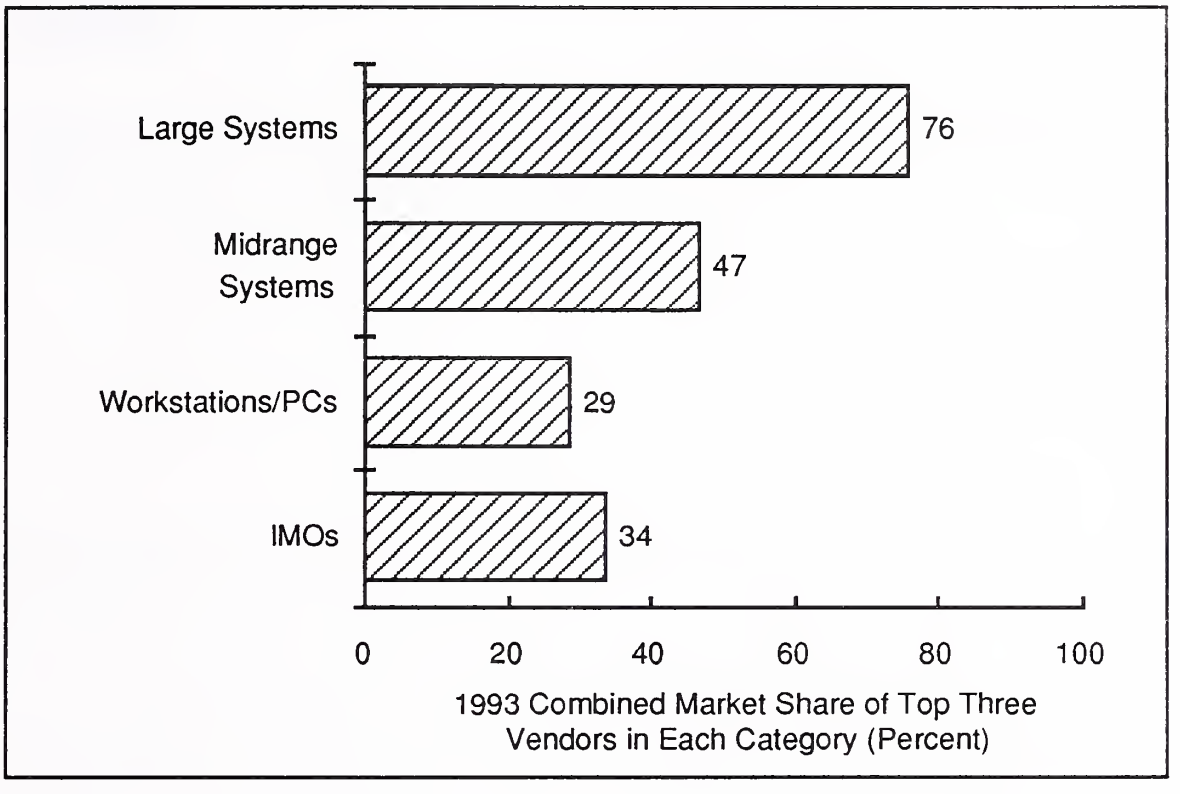
Exhibit II-8

Combined Market Share of Top Three Service Vendors



- In the platform where the leading vendors have the smallest share, workstation/PC will offer the greatest opportunity for new competitors who enter the market as IMO's.

- Exhibit II-8 shows that leading vendors do not have as dominant a position in the IMO market.

Another opportunity mentioned by several new competitors is offering specialized maintenance services in network support, or service of peripherals as an adjunct to equipment services for specific platforms.

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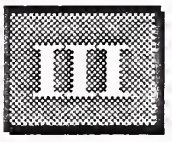

Analysis of Equipment Services Market, 1994-1999

A
U.S. Equipment Services Market Forecast

1. Factors Driving and Inhibiting Market Performance

The factors that are driving or inhibiting the equipment services market in the U.S. are examined in this section. These factors can impact either or both components of equipment services, equipment maintenance and environmental services, computer manufacturers and IMOs.

Exhibit III-1 illustrates that the major factors affecting the equipment services market and vendors include a number of technological considerations—primarily the use of client/server computing.

- The use of client/server technology is not only having an impact on revenues related to mainframe and midrange platforms. It has also added to the complexity of problem diagnosis and equipment maintenance at many installations.
- This technology has been accompanied by an explosion of LAN use as well as the development of more complex networks and new types of equipment used to interconnect systems.

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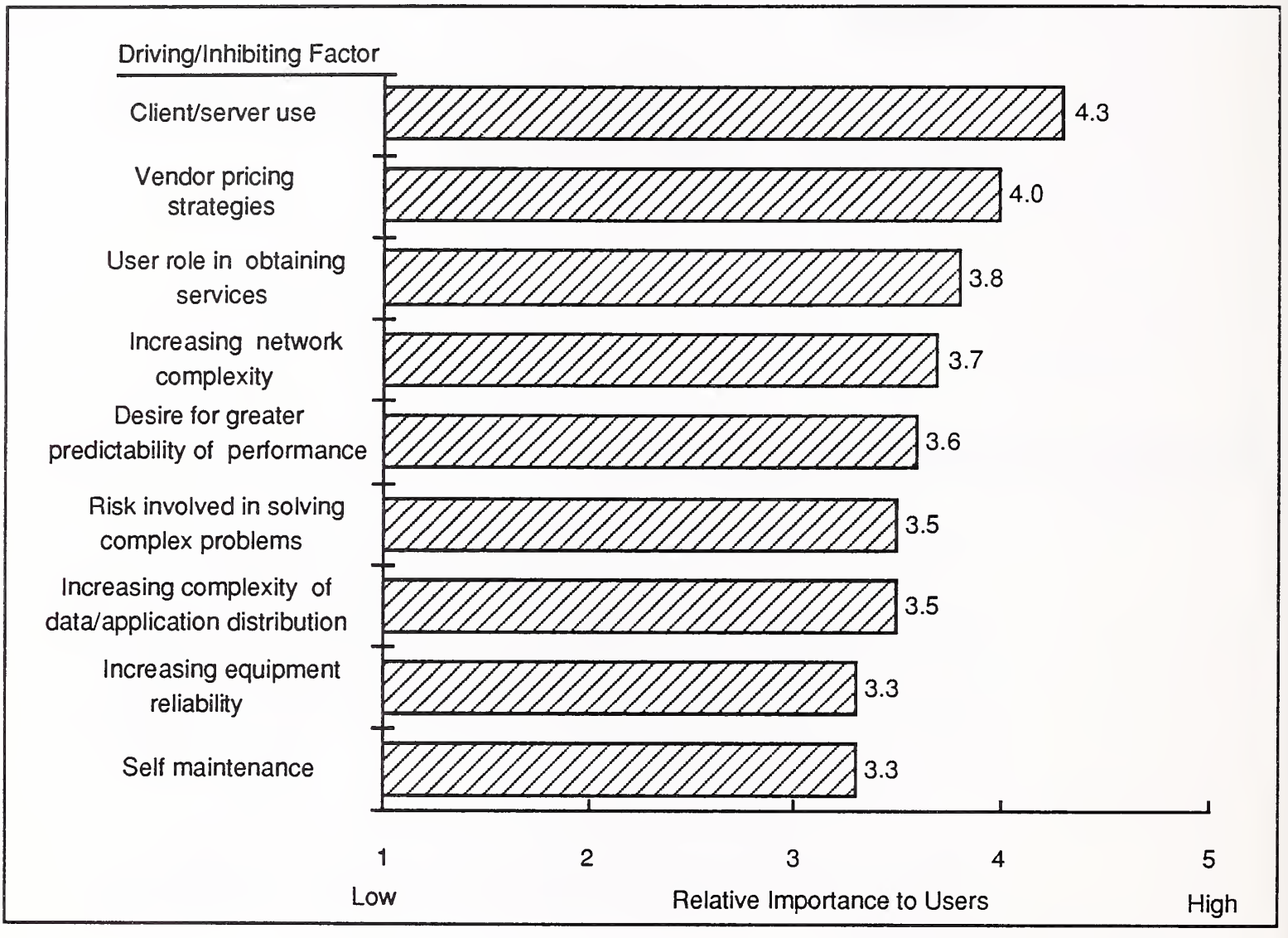
Exhibit III-1

Market Drivers and Inhibitors



These factors have provided more demand for knowledgeable equipment services providers, particularly those with a general understanding of applications, and have also added to the challenges facing vendors providing equipment services.

In addition to client/server technology and its associated networks, the maintenance of complex networks, the use of new imaging systems, storage subsystems and various types of multimedia technology have also brought new opportunities and challenges to the equipment services market.

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- Although a number of vendors report that new technology is more of a driver than an inhibitor, generating more total demand for equipment services, they point out that it is often accompanied with losses of revenues for older technology.

- Vendors also report that it is difficult to ensure that the provision of equipment services for new technology will be profitable. They find that additional training, hot line aid or discussions of problems as well as investments in software may be required.

Some equipment services vendors have taken advantage of the increasing use of new technology, including client/server systems interconnected with networks and mainframe databases by offering aid in planning to reconfigure equipment systems. Outsourcing vendors have become more aware of that trend, however, and are now offering more comprehensive types of desktop services to meet these needs.

A factor that is driving the use of equipment services for client/server systems as well as standalone workstation/PCs is the growing involvement of users in the choice and operation of computing systems. They are demanding high levels of reliability and predictable performance. Other factors that drive the business of equipment services vendors are illustrated in Exhibit III-1, including pricing and service delivery strategies and the supply of nonequipment services that can meet user needs.

Market inhibitors shown in Exhibit III-1 include increasing equipment reliability, self maintenance and risks involved with estimating costs of complex problems and maintaining capabilities in less used skills.

Exhibit III-2 indicates the effects market drivers and inhibitors will have on the equipment services market between 1993 and 1999. The allocation of expenditures for large and midrange systems will decrease during this period by 38% and 31%, respectively. Expenditures for equipment services for workstation/PCs will increase by 47% and expenditures for environmental services will double.

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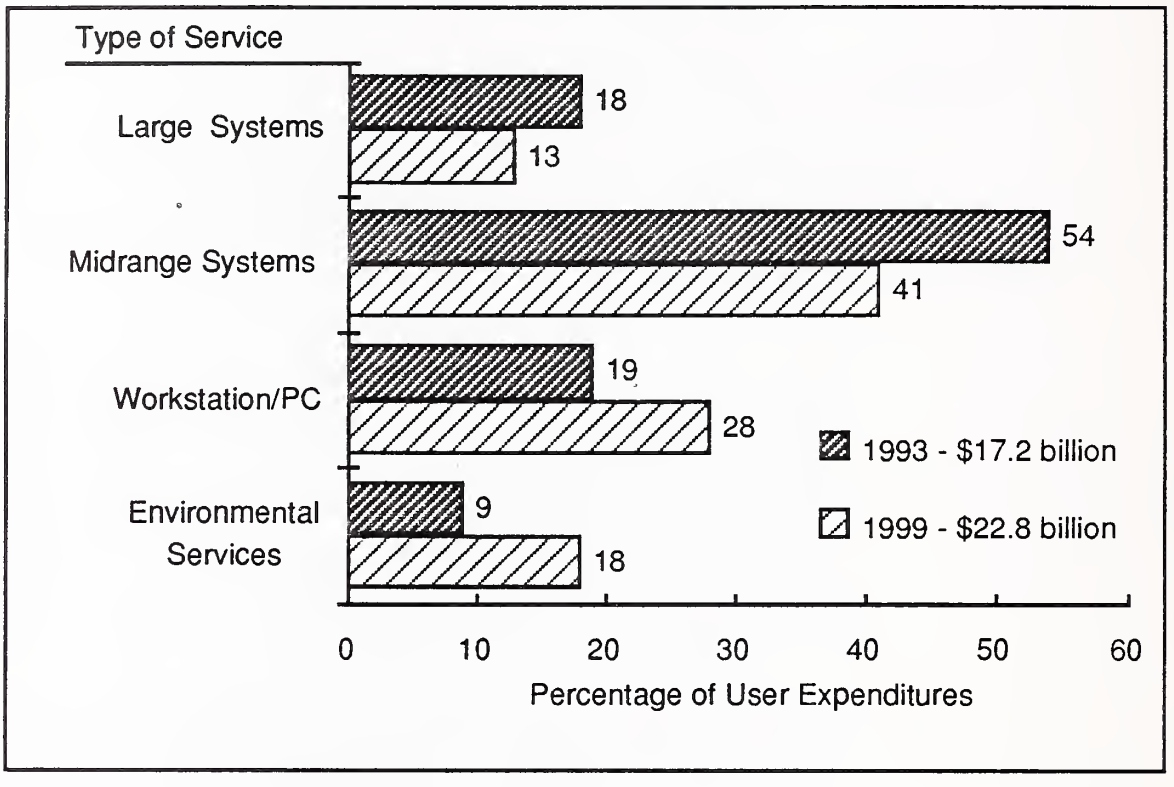
Exhibit III-2

Changes in Allocation of User Expenditures for Equipment Services, 1994-1999



- The total expenditures for midrange systems is now larger than the total market for equipment services for workstation/PCs and environmental services, but will no longer be true in 1999.
- The annual growth of revenues for environmental services or workstation/PC equipment services is already larger than the net growth of these services for mainframe and midrange systems.

2. Analysis of Expenditures by Platform, 1994-1999

Exhibit III-3 breaks down the changes in annual expenditures for equipment services into expenditures for three platforms and changes in environmental expenditures.

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Exhibit III-3

Equipment Services Market Forecast, 1994-1999

Equipment Services	$ Millions							94-99 CAGR (Percent)
Equipment Maintenance	1993	1994	1995	1996	1997	1998	1999	
Large Systems	3,110	3,105	3,090	3,070	3,050	3,030	2,970	-1
Midrange Systems	9,255	9,575	9,580	9,580	9,530	9,490	9,400	0
PC/Workstation Systems	3,315	3,700	4,125	4,600	5,130	5,730	6,380	12
Environmental Services	1,560	1,830	2,150	2,520	2,950	3,490	4,060	17
Total	17,240	18,210	18,955	19,770	20,660	21,740	22,810	5

- The current plateau and approaching decline in expenditures for mainframe and midrange systems are more apparent now than they have been during the last two years.
- The situation is being discussed more by vendors providing mainframe services than by vendors of midrange. A number of mainframe-oriented vendors are planning to increase services to this platform, by capturing business from competitors.

B
Overview of Equipment Services Market Segments

1. Equipment Maintenance

The first segment of equipment services—equipment maintenance—is concerned with the services provided to repair and diagnose problems and provide preventive maintenance on-site and off-site for computer equipment. Exhibit III-3 shows equipment maintenance expenditures for three platforms of equipment. All equipment other than computers such as printers, disk drives or other types of data storage systems and network equipment are included together with the platform for which they are associated, or divided between platforms where they are shared.

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2. Environmental and Other Services

Exhibit III-3 also tracks environmental services that includes equipment and data center-related special services such as cabling, air conditioning and equipment moves.

In addition to the equipment services categories, there are also a number of services supplied by equipment services vendors that are not part of the equipment services market sector. When vendors are asked to list the services that are supplied in addition to maintenance, they will often include professional, processing or outsourcing services as well as environmental services and various types of clerical or administrative aid as shown in Exhibit III-4.

Exhibit III-4

Other Equipment Services Identified by Vendors

• Configuration Planning	• Consulting
• Capacity Planning	• Network Planning
• Environmental Planning	• Network Management
• Software Support	• Disaster Recovery
• Maintenance-Related Training	• Systems Operation
• Depot Service	• Problem Management
• Refurbishment	• Applications Software Support
• Install/Deinstall/Moves	• Procurement
• Preventive Maintenance	• Help Desk

- Disaster recovery and training and systems operation are part of other information services sectors identified and researched by INPUT.

- Environmental planning, cabling and install and deinstall moves are part of environmental services.

Services listed for the first time on this report include refurbishment, (not a new offering) and procurement aid—a newer service.

Forecasts of expenditures for environmental and other services supplied by equipment services vendors are shown in Exhibit III-5. Both categories of services are growing rapidly, compared to equipment maintenance in general.

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Exhibit III-5

Growth of Environmental and Other Services, 1994-1999

	Actual	$ Millions						94-99 CAGR (Percent)
	1993	1994	1995	1996	1997	1998	1999	
Environmental Services	1,560	1,831	2,150	2,520	2,950	3,490	4,065	17
Other non-Equipment Services Offerings	670	750	890	1,050	1,750	1,480	1,745	18
Total Environmental and Other Services	2,190	2,580	3,040	3,570	4,200	4,970	5,810	18

- A number of equipment services vendors report they are selling environmental and other services because the services offer opportunities for increasing revenues at sites where they have equipment maintenance business.

- In addition, the ability to provide environmental and other services can aid an equipment services vendor to penetrate new accounts.

Some computer manufacturers with equipment services business have sold supplies, software products and software development projects through equipment maintenance activities and representatives. The revenues from these activities is not always counted or recognized as other than equipment services revenue.

Without counting all the expenditures that might be partially attributable to equipment services activities, the total amount of expenditures for environmental plus other, nonequipment services is growing at a faster rate than equipment maintenance services and will amount to 31% of the expenditures for equipment maintenance services by 1999.

Expenditures for environmental services and equipment maintenance are included in the total figure for equipment services. The nonequipment services are not included since they are activities classified under other market sectors of information services, including professional and processing services. Some vendors have historically included revenues for nonequipment

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services with their equipment services revenues, but the trend is to move them to newer, nonequipment segments.

C
Impact of Independent Maintenance Organizations

The expenditures for equipment services that are paid to IMOs or the IMO offices of computer manufacturers are shown in Exhibit III-6.

- These expenditures are a subset of the expenditures shown in Exhibit III-2, and are significantly smaller than those paid to computer manufacturers for maintenance of their own equipment.
- Due to the tendency of fast growing computer manufacturers such as Sun and HP to maintain their own equipment and the share of midrange business handled by IMOs, the growth rate of IMO business is lower than the equipment services business of manufacturers.

Exhibit III-6

Independent Maintenance Organization Forecast, 1994-1999

Equipment Maintenance	$ Millions							94-99 CAGR (Percent)
	1993	1994	1995	1996	1997	1998	1999	
Large Systems	100	103	106	108	108	106	102	0
Midrange Systems	1,290	1,360	1,410	1,415	1,410	1,390	1,350	0
Workstation/PC	1,220	1,360	1,475	1,605	1,755	1,925	2,105	9
Environmental Services	235	265	295	328	365	405	455	11
Total	2,845	3,087	3,286	3,456	3,638	3,826	4,012	5

IMOs can include offices of computer manufacturers as well as separate firms or subsidiaries of noninformation systems or services companies. IMOs include companies or subsidiaries involved with the computer business such as Vanstar (formerly

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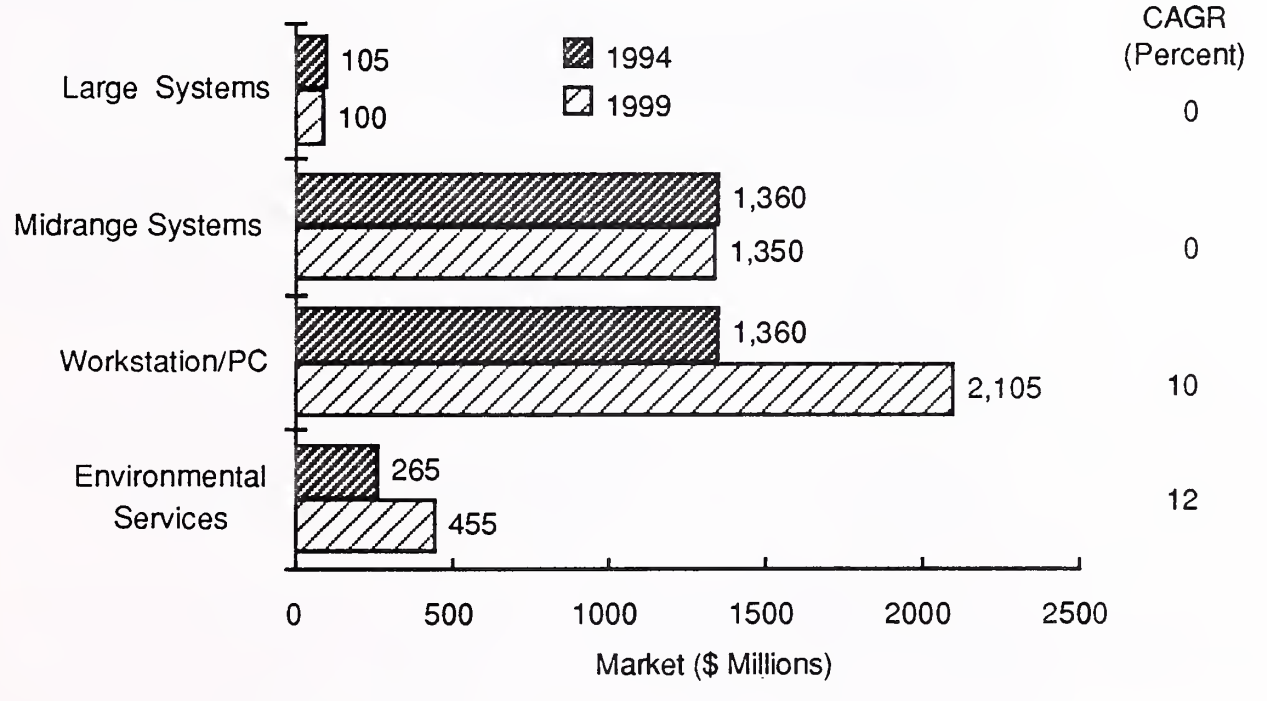
Computerland), other related industries, such as Bell Atlantic and unrelated companies such as JWP (now reorganized as Entex). IMOs also include a number of small firms dedicated to that purpose such as Intelogic Trace.

Computer manufacturers can have IMO offices to control the maintenance of all equipment at sites or to expand their revenues in an effort to gain economies of scale. In addition to setting up a separate office or subsidiary for IMO work, some computer manufacturers have added equipment of other manufacturers to their regular service business (multivendor options).

Exhibit III-7 indicates that expenditures for IMO services are more concentrated on midrange and workstation/PC computers than on mainframes.

Exhibit III-7

Comparison of IMO Business by Subcategory, 1994-1999



Total Market: 1994 = 3,085 1999 = 4,015
CAGR: 5%

Numbers are rounded

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- IMOs are usually less able to diagnose problems or provide aid in relation to system software for large/mainframes. This is one of the strongest reasons why users tend to use manufacturers for mainframe equipment services.

- In addition, users of large/mainframe computers are less price sensitive in regard to equipment services. Although they would be less likely to switch vendors for lower prices, many would consider changing vendors if prices inordinately increased.

IMOs tend to be opportunistic and provide services for the largest (midrange) or most rapidly growing areas of the market. such as workstation/PC equipment. They are less likely to seek equipment services business for large computing systems.

IMOs have targeted certain older equipment including peripherals that have moderate use, including those made by manufacturers that have left the business, as opportunities for penetrating accounts. They expect less competition from manufacturers when they bid services for this equipment.

- Computer manufacturers, however, have expanded their coverage to include equipment at sites other than their own through multivendor contracts in order to control sites and/or gain additional revenue for what they hope will be relatively low additional cost.

- In addition, some computer manufacturers also bid on maintenance service in situations where their equipment presence is minor in order to gain a larger foothold.

To counter IMO marketing efforts, manufacturers are more aggressive and apt to reduce their prices and bid on more equipment in order to control as much of a site as possible. This can reduce finger pointing in the case of complicated problems.

- IBM, DEC and HP have introduced more competitive pricing, including prepaid discounts and inclusive agreements that provide very competitive pricing versus IMOs.

- Manufacturers now offer multivendor support that reduces opportunities for IMOs.

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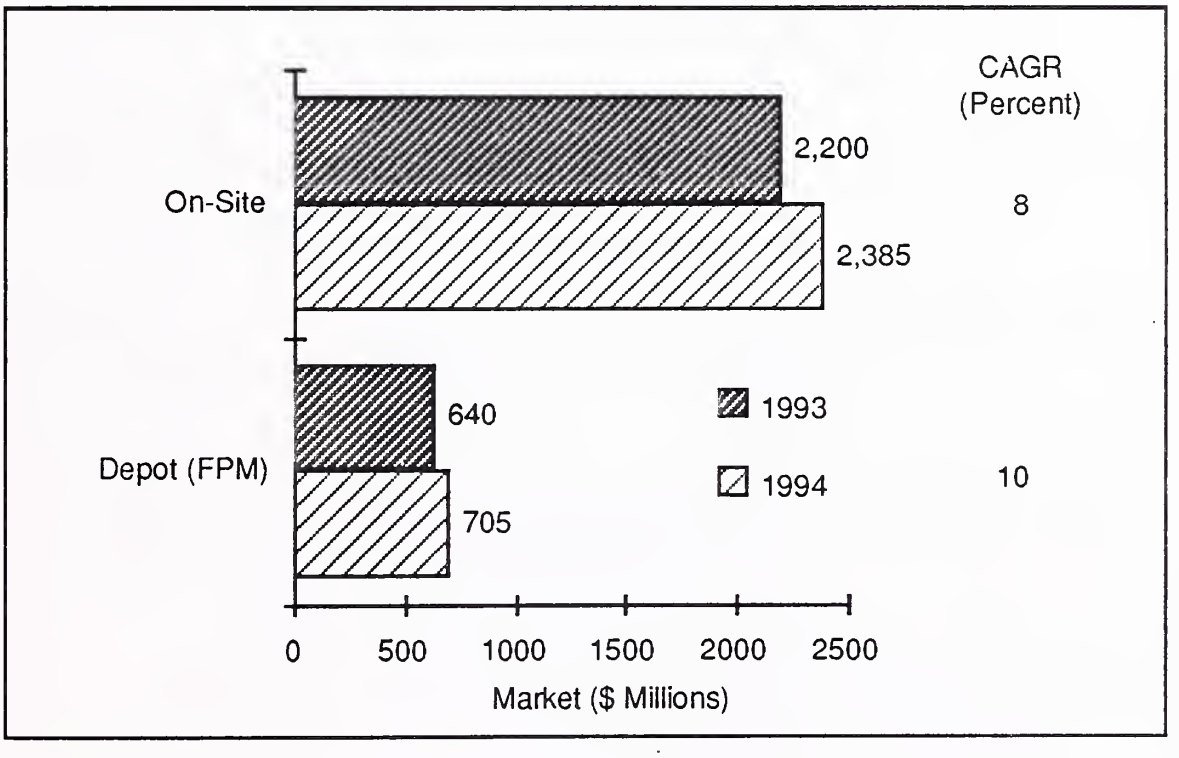
- Computer manufacturers also offer depot or fourth-party maintenance to take business or keep it away from IMOs.

D
Depot or Fourth-Party Maintenance (FPM)

In addition to offering work on site, IMOs are now offering more depot or fourth-party maintenance that involves remanufacture, refeaturing of products, upgrades/downgrades and cleaning and cosmetic changes through drop off at a depot rather than shipment to a manufacturer. A comparison of depot work versus work on site is illustrated in Exhibit III-8.

Exhibit III-8

IMO Business in On-Site and Depot Markets, 1993-1994



- A number of users, particularly large users, now handle some of their own maintenance by dropping work off at depots.

- Depots also contact users directly as well as at IS offices to seek business.

Equipment services vendors report that depots offer a number of advantages as indicated in Exhibit III-9.

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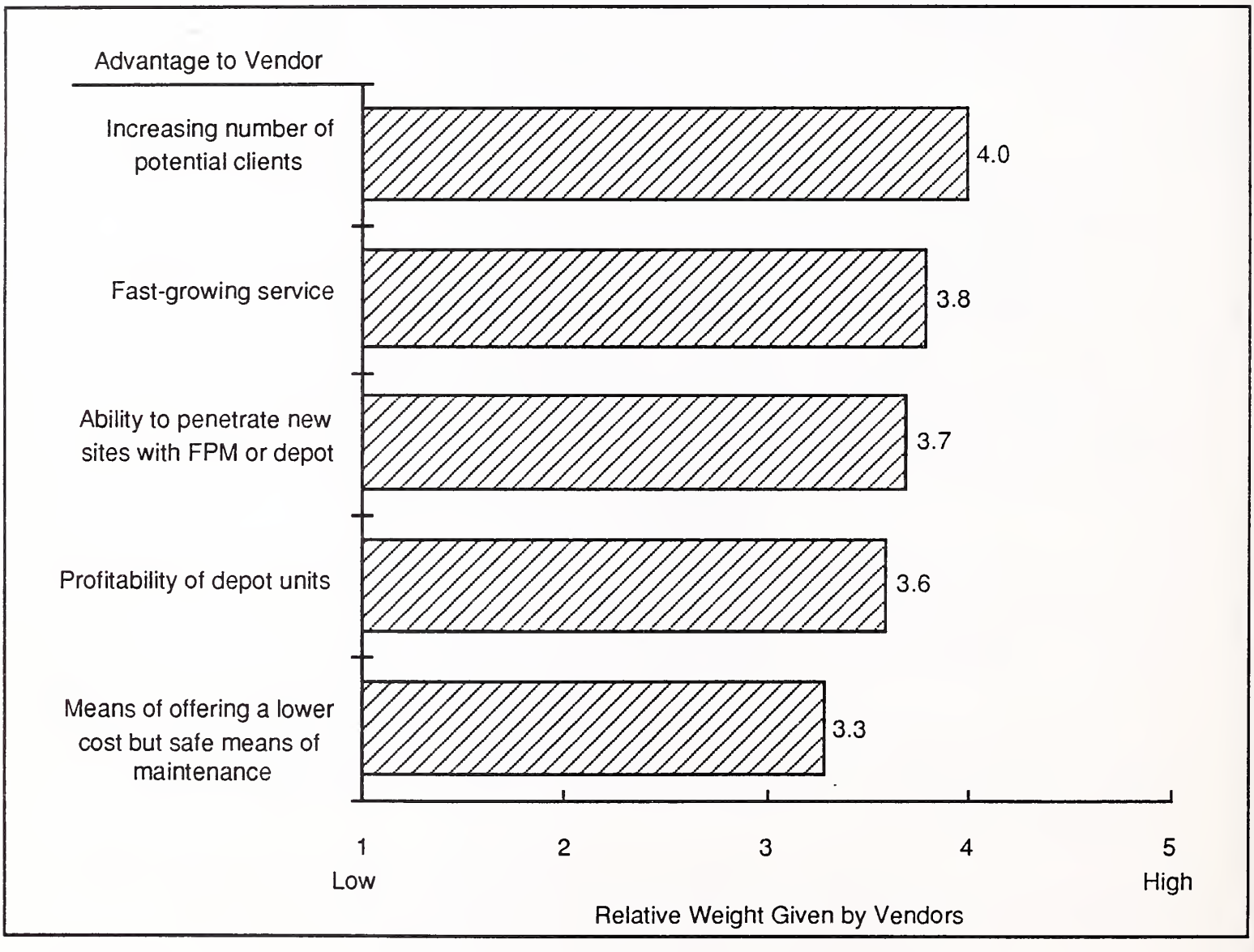
- A wide range of potential customers can use depots including users as well as IS departments who may want to bring in a printer, PC, portable disk drive or other unit not covered by a maintenance contract.
- Depot or FPM offers a fast rate of growth for maintenance business, and is more likely to be able to control costs and be run at a profit.

Exhibit III-9

Advantages of Depot (or Fourth-Party) Maintenance Business to Vendors



The forecast of the depot or fourth-party market and the traditional equipment services work of IMO vendors compared in Exhibit III-10 illustrates that depot work is growing twice as fast

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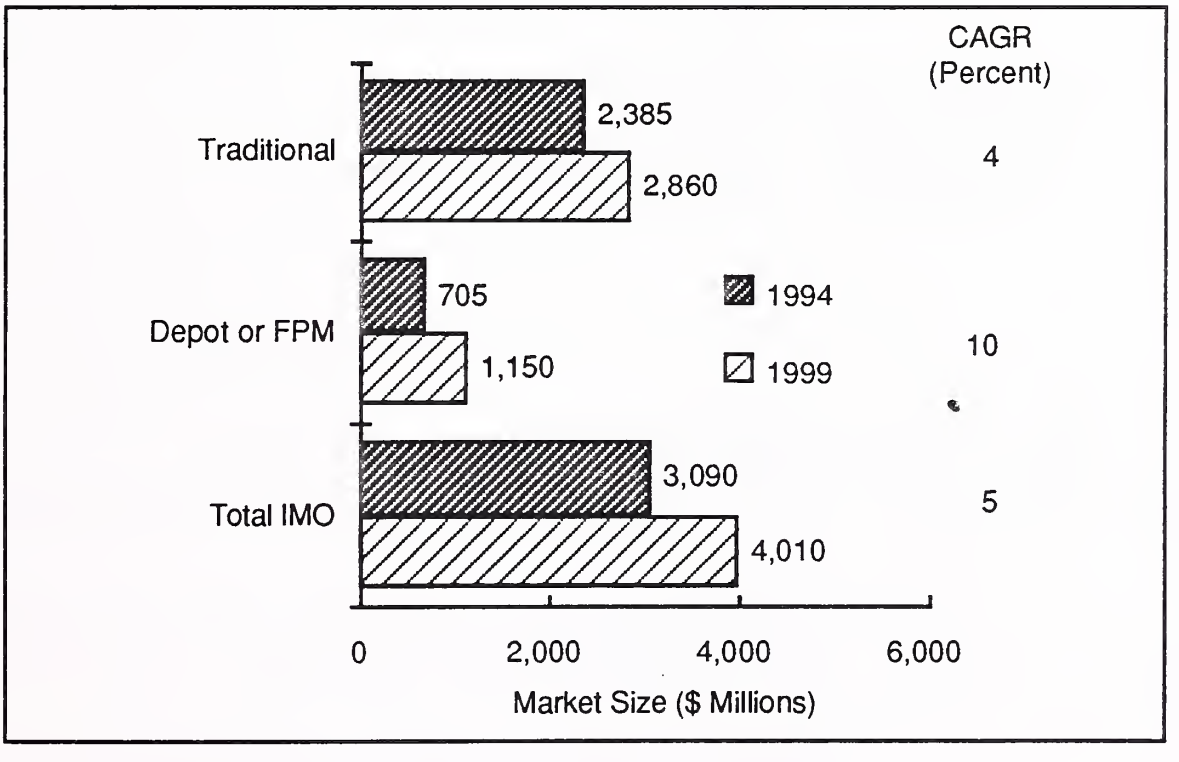
as regular equipment services business of IMOs. This exhibit includes IMO and depot business of manufacturers as well as separate IMO organizations.

- The fact that depot business is growing faster than the rest of IMO business is partially due to the fact that the use of workstation/PC equipment is growing rapidly in comparison to other platforms, and a greater percentage of maintenance for workstation/PC computers is done at depots.

- The growing level of knowledge about workstation/PC equipment is also encouraging users and members of the IS staff to take more responsibility for checking out and having equipment maintained. This tends to drive business toward depots.

Exhibit III-10

Forecast Traditional IMO versus Depot (FPM), Business, 1994-1999



There will still be a greater volume of expenditures for on-site work done by traditional IMO firms during the period from 1994 to 1999 as Exhibit III-11 indicates.

It is interesting that depots and other IMO activities are not perceived as offering as high a level of knowledge as

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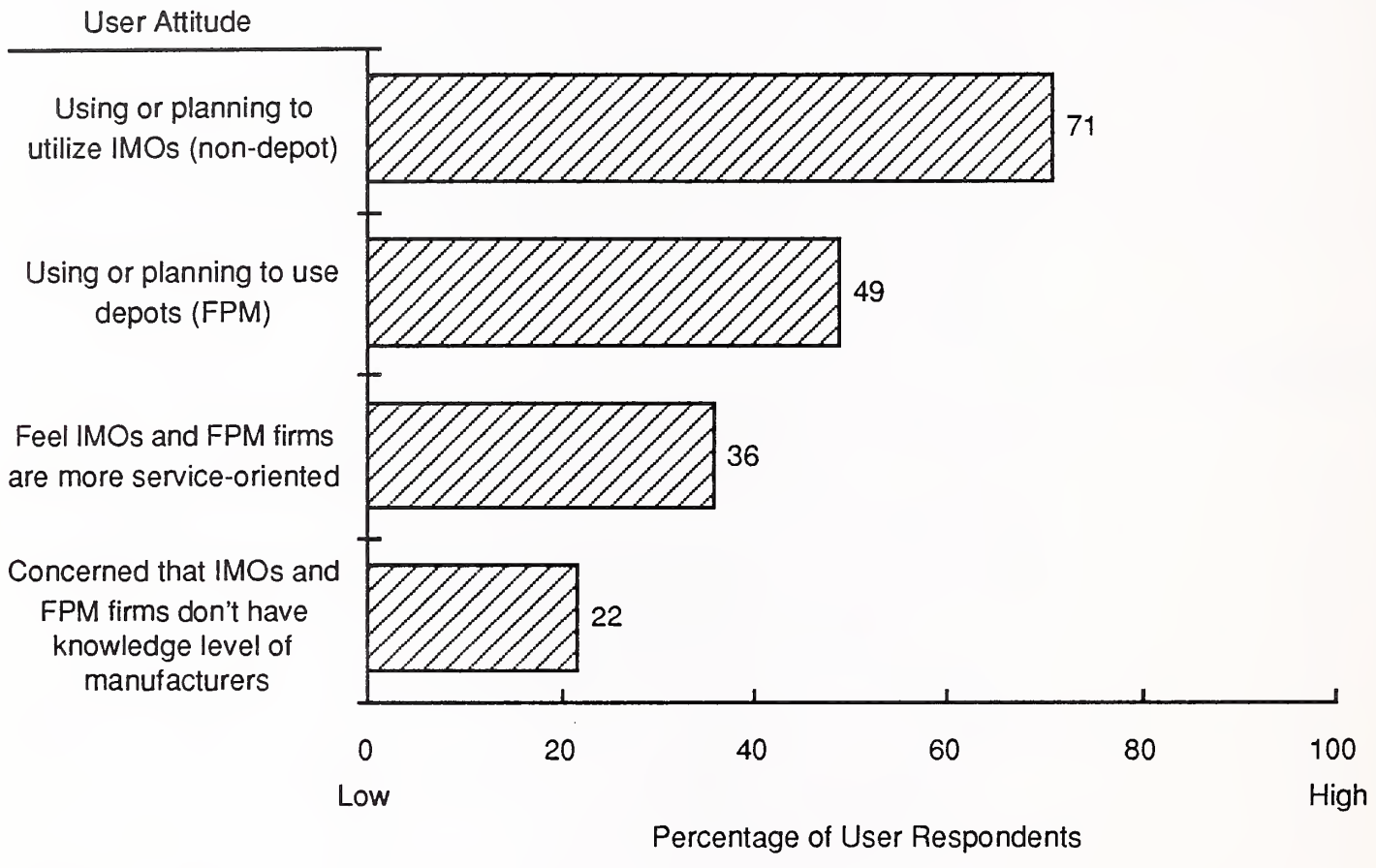
manufacturers have. Users and IS managers are apprehensive about the network knowledge of IMO staff.

Exhibit III-11

User Attitudes Regarding Use of Traditional IMOs and Depots (FPM)



Note: Percentages are based upon users responding, not users queried.

- IMO organizations must address their level of knowledge and their interaction with customers.
- Knowledge must be gained of equipment to be serviced and other equipment and networks that are present at client sites. This could require continuing instruction for people assigned to certain accounts, but it could pay off with opportunities to gain additional revenue.

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An image of knowledge as well as a sensitivity to the service needs of customers is imperative to retain as well as gain business, according to users of equipment services.

Users also report that depot or fourth party firms do not have a wide range of services that users are interested in such as configuration planning or disaster recovery. Vendors involved in this market sector should review the environmental and other, non equipment services, being sold to users, since they have high growth rates and offer an opportunity to gain additional revenue from existing clients.

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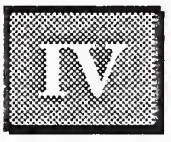

Competitive Environment

A
Top Service Providers by Platform

Computer manufacturers are still the dominant providers of equipment services as shown in the list in Exhibit IV-1, although some of the larger vendors have suffered decreases in market share.

- The top three manufacturers still account for more than one-third of equipment services revenue.
- The share attributable to vendors other than the top eight has increased by about 8% since 1992.

A number of the top vendors in equipment services provide services for two or more platforms. Three of the top five vendors listed in Exhibit IV-1 are among the top providers of equipment services for large systems as shown in Exhibit IV-2.

- The seven firms that are listed in Exhibit IV-2 have approximately 92% of the equipment maintenance business for large computing systems.
- Exhibit IV-2 shows that the manufacturers most active in the sales of large computers in the U.S. also tend to dominate equipment services for that platform. The users of the large computers tend to use these manufacturers even if service prices are slightly higher, because the loss of computing time on these machines carries a greater expense.

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Exhibit IV-1

Largest Equipment Services Vendors (U.S.)

Company	Rank	1993 U.S. Revenue ($ Millions)	Market Share (Percent)
IBM	1	3,165	18
DEC	2	2,370	14
AT&T	3	1,100	6
HP	4	975	5
Unisys	5	760	4
Bell Atlantic BBS	6	395	2
Sun	7	320	2
Amdahl	8	295	2
Bell Atlantic	9	225	1
GECS	10	210	1
Total Top Vendors		**9,715**	**56**
Other Vendors		**7,526**	**44**
Total Market		**17,240**	**100**

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Exhibit IV-2

Largest Systems Equipment Services Vendors

Company	Rank	1993 U.S. Revenue ($ Millions)	Market Share (Percent)
IBM	1	1,475	47
Unisys	2	650	21
Amdahl	3	295	9
Cray	4	195	6
AT&T/NCR	5	120	4
Bull	6	65	2
CDC	7	60	2
Total Top Vendors		**2,860**	**92**
Other Vendors		**250**	**8**
Total Market		**3,110**	**100**

The dominance of equipment manufacturers is much less pronounced for midrange systems. Exhibit IV-3 shows that the top 10 vendors of midrange equipment services have a combined market share of 65%.

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Exhibit IV-3

Largest Midrange Systems Equipment Services Vendors

Company	Rank	1993 U.S. Revenue ($ Millions)	Market Share (Percent)
DEC	1	2,350	25
IBM	2	1,360	15
AT&T/NCR	3	680	7
HP	4	650	7
Bell Atlantic	5	225	2
Tandem	6	210	2
Data General	7	160	2
GECS	8	160	2
Decision Data	9	199	1
Dataserv	10	85	1
Total Top Vendors		**5,980**	**65**
Other Vendors		**3,280**	**35**
Total Market		**9,260**	**100**

- There is less concentration of services in this market than in the market for vendors of large computer maintenance since users are more prone to change services for price.
- Also, vendors are anxious to penetrate this market since it is the largest platform segment in terms of equipment services revenues and will remain the largest through 1999.

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There is still less concentration in the equipment services market for workstation/PC systems where the top 10 vendors control about 57% of the market share as Exhibit IV-4 indicates. In addition, half of the vendors listed in Exhibit IV-4 are also organizations that are not a unit of a computer manufacturer. The workstation/PC market offers opportunities for different types of vendors and IMOs.

Exhibit IV-4

Top Workstation/PC Systems Equipment Services Vendors

Company	Rank	1993 U.S. Revenue ($ Millions)	Market Share (Percent)
IBM	1	330	10
Sun	2	320	10
AT&T/NCR	3	300	9
HP	4	225	7
Bell Atlantic	5	170	5
Vanstar (Computerland)	6	150	5
Entex	7	105	3
Computervision	8	100	3
Intelogic Trace	9	90	3
Tandy	10	90	3
Total Top Vendors		**1,880**	**57**
Other Vendors		**1,435**	**43**
Total Market		**3,315**	**100**

B
IMO Service Providers

The IMO vendors of equipment services listed in Exhibit IV-5 contain companies from a number of different industries.

- Bell Atlantic is a regional bell operating company that offers various types of information services including equipment services, through a subsidiary.

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- GE is a major electrical manufacturer that offers information services including network, professional and equipment services through several subsidiaries.
- Vanstar runs retail computer stores and also markets equipment and other information services.

Exhibit IV-5

Top Independent Maintenance Organizations (U.S.)

Company	Rank	1993 U.S. Revenue ($ Millions)	Market Share (Percent)
Bell Atlantic Business Systems Services	1	400	17
Vanstar	2	150	9
GECS	3	210	8
AT&T/NCR	4	150	6
Dataserv	5	100	4
Decision Data	6	100	4
Interlogic Trace	7	90	4
Entex	8	90	4
Novadyne	9	80	4
Total Top Vendors		**1,350**	**53**
Other Vendors		**1,200**	**47**
Total Market		**2,560**	**100**

Over one-half of the IMO vendors contacted report they have entered the equipment services market for a combination of objectives including revenue and the synergy they expect equipment services to have with other business.

- Recent challenges in the IMO business, include the investment that is necessary to keep pace with changing technology.
- Some IMO vendors have encountered financial difficulty and reorganized as a result of these challenges.

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As mentioned before, computer manufacturers report they have multiple reasons for entering the IMO business including the desire to control more equipment at a customer site and the objective of obtaining more revenue for capabilities they have in place.

C
Tendency Toward Acquisition and Alliances Among IMOs

As a result of the aforementioned challenges and opportunities of the IMO business, there have been continuing acquisitions, alliances, financial aid and reorganizations.

- JWP encountered financial difficulties after a period of growth supplying equipment services and related products as well as other services. It has been reorganized under the name Entex.

- Novadyne obtained sufficient financial aid in late 1993 to continue its program of offering post-implementation maintenance and other performance management services. It was created through a leveraged buyout of the McDonnell Douglas maintenance operation in 1991.

Novadyne had also formed an alliance with National Customer Engineering in 1993 to jointly offer on-site and service center computer maintenance. One of the companies, Bell Atlantic, has signed a significant number of alliances to expand its multivendor services. In addition to maintaining IBM, DEC and Sun equipment, it has formed alliances that maintain equipment of more than eight other vendors in the U.S. Vanstar also formed an alliance in 1993 to supply services for network implementation.

There have been a number of changes of service activity in the recent past. In the last five years, the IMO service business of Control Data was acquired by Sorbus which was, in turn, acquired by Bell Atlantic. Vanstar (formerly known as Computerland) acquired the service business of TRW to combine with its retail computer business and other information services activities.

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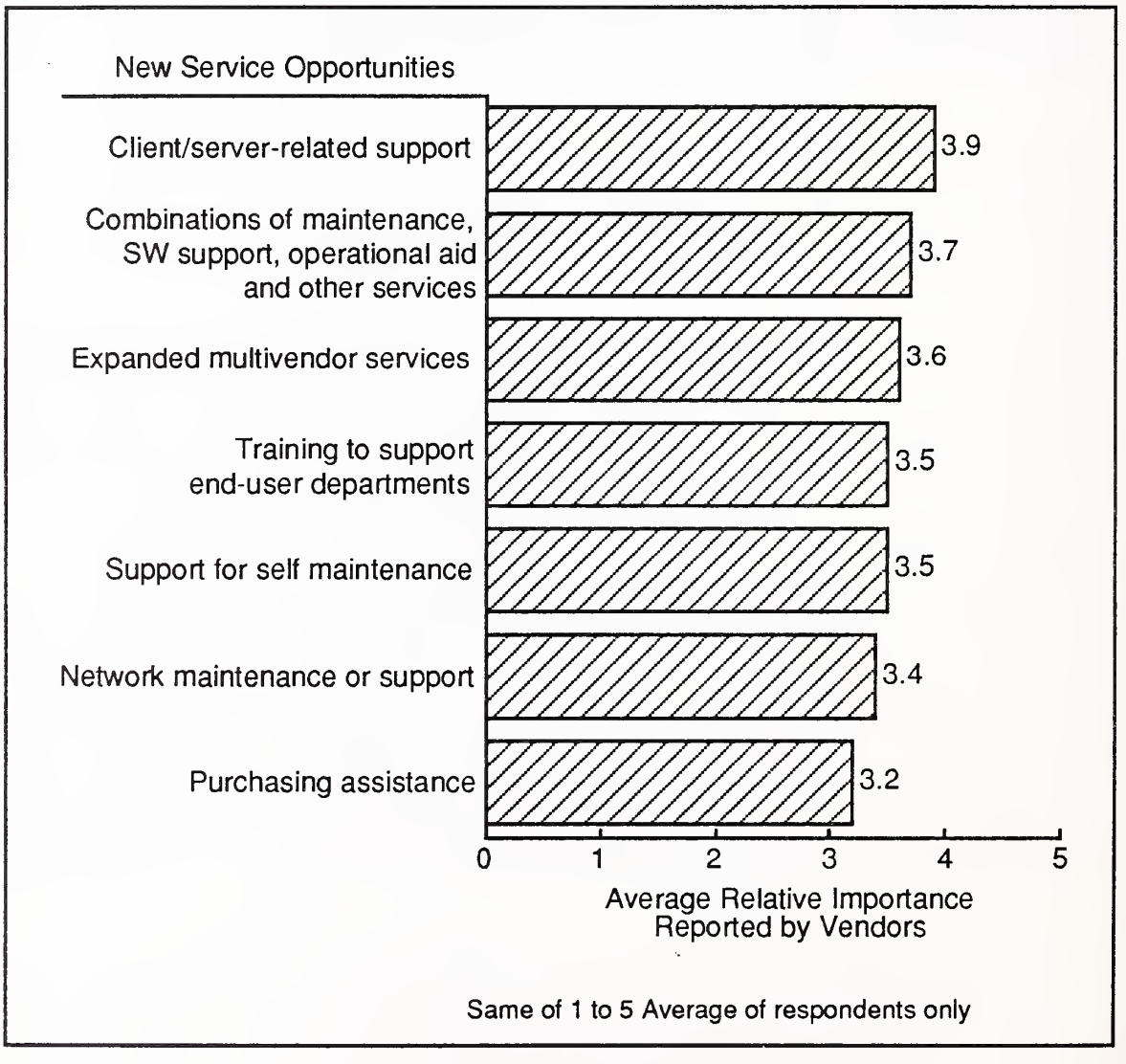
D
New Service Opportunities

Vendors report a number of new service opportunities for IMOs including client/server-related support services, network planning and implementation support, more complex types of refurbishment, purchasing services and additional non-maintenance services as indicated in Exhibit IV-6.

Exhibit IV-6

New Service Opportunities



- Vendors report that users have a high level of interest in combinations of equipment services support such as a help desk and desk top services to aid in the use of client/server systems. Outsourcing vendors have also recognized this opportunity and are increasing their marketing of desktop services.

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- An increasing number of vendors also report the addition of nonmaintenance services such as disaster recovery, training, operational support and the sale of supplies.

Some vendors feel support for self maintenance is another new service opportunity, although others state it can result in cannibalizing their own accounts. Those who support this service such as Dataserv, which holds an annual self maintenance conference, report that it is a means of invading accounts or gaining business from competitors.

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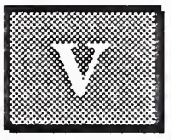

Equipment Services Market Issues and Trends

A
User Needs and Issues

Exhibit V-1 indicates the issues and needs users feel are most important regarding the use of equipment services.

- The issue reported to be most important to users is the need to support the increasing use of client/server technology and increasingly complex networks.

- According to users, vendors who address their equipment services needs should be prepared to provide service with LANs, WANs, other network implementations and system software as well as computing equipment. These needs can involve helping to diagnose problems that may involve application considerations. They may not be able to solve all the problems that can be encountered with the use of client/server systems, but they should be ready to participate in investigating them and to respond rapidly to requests for assistance.

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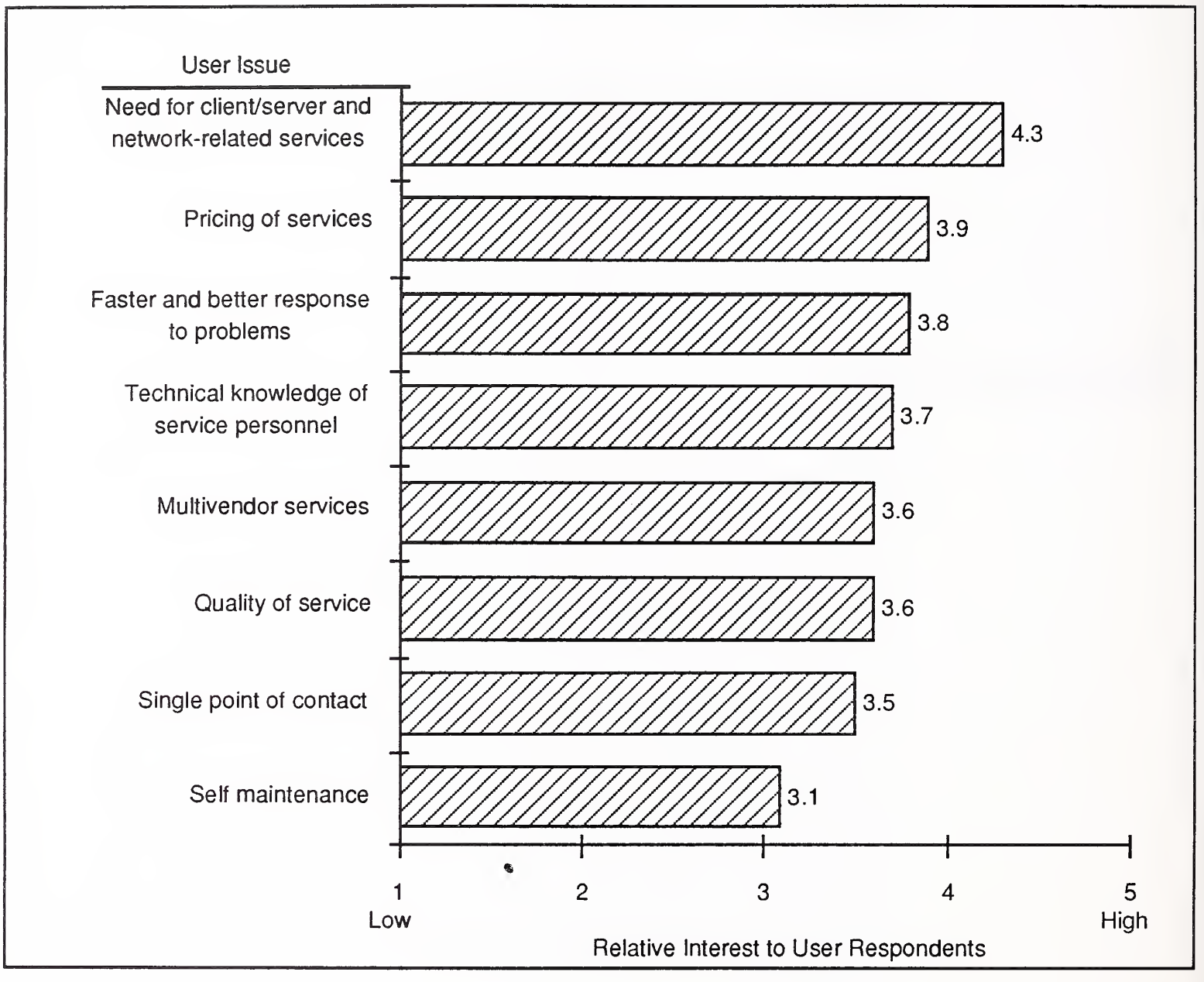
Exhibit V-1

User Issues



Other issues that remain important to users include multivendor services and having one point of contact to use for obtaining services.

- The importance of multivendor maintenance is analyzed in Exhibit V-2. Its relative importance falls off for mainframe and minicomputers in the future since users anticipate a decline in use of this equipment.

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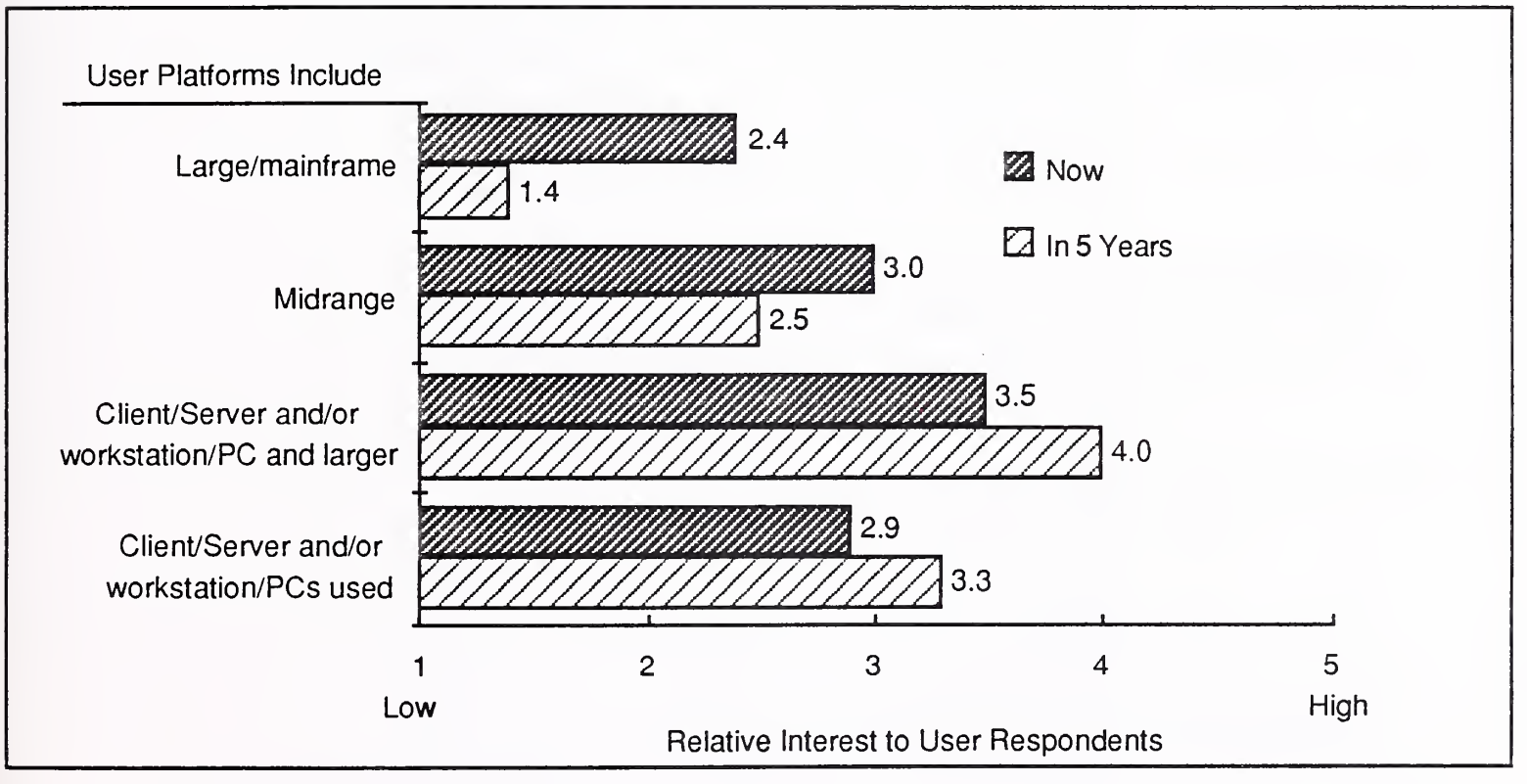
- The importance of multivendor maintenance increases at sites using workstations or client/servers, whether or not they are also using larger computers. Many users of this distributed equipment are interested in finding maintenance vendors who can service workstations, disk drives, terminals and other equipment in use rather than use multiple vendors.

Users interested in having a single vendor service the equipment of multiple vendors, may still want to take some equipment to depots for repair or consider the use of specialized maintenance firms for disk drives or communication.

Exhibit V-2.

Importance of Multivendor Support



B
User Satisfaction and Change of Vendors

The characteristics of service rated by users to ensure continued use of a vendor are listed in Exhibit V-3. The leading characteristic was system availability or percentage of trouble-free operation. Both terms were used by respondents, but defined almost identically. This was also the leading characteristic in the survey conducted last year.

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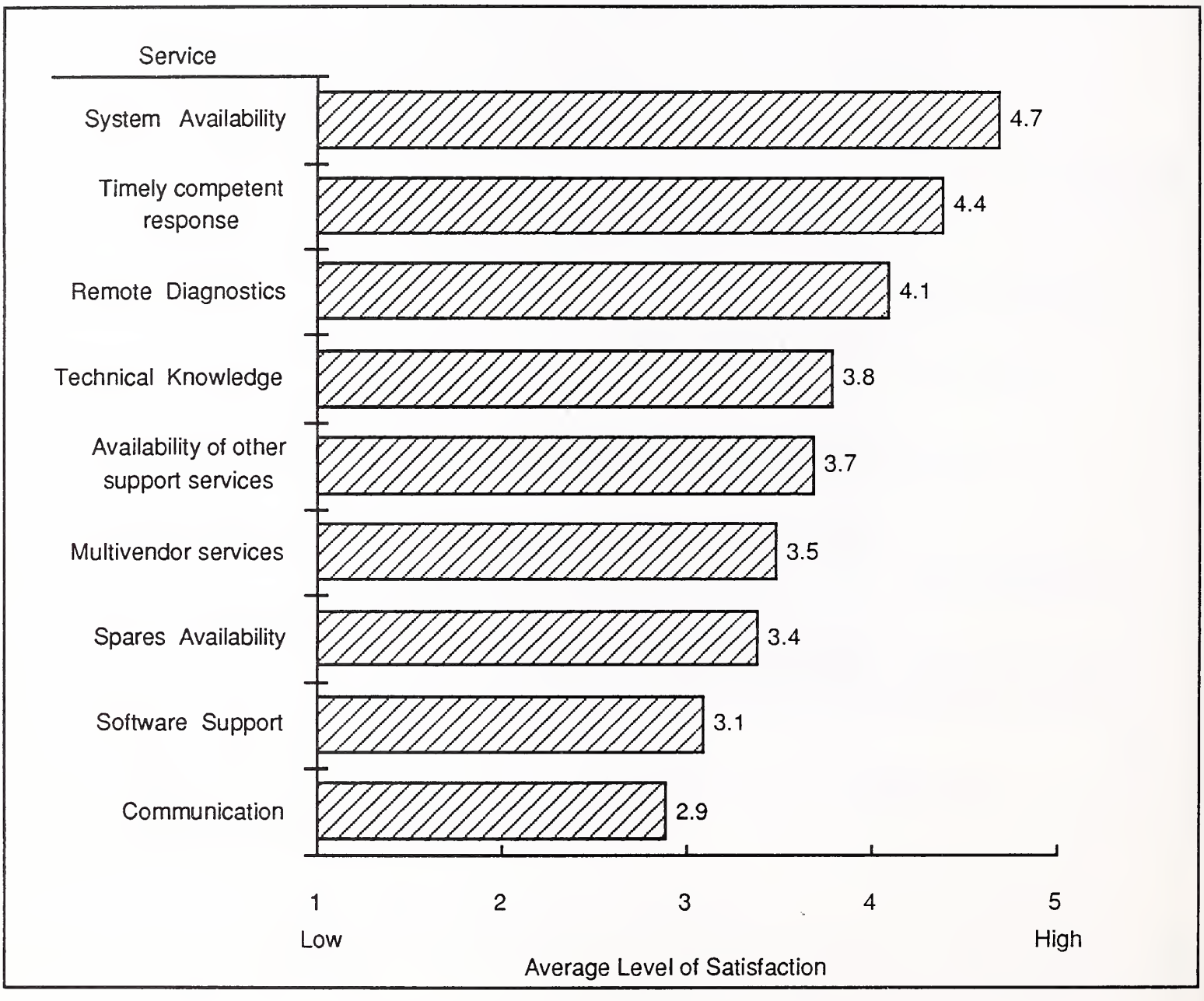
This year, there was a change in the characteristic ranked second in satisfaction. The importance of timely, competent response has become more important at both ends of commercial systems platforms.

Exhibit V-3

Satisfaction with Vendor Services



- Enterprise systems require rapid response when problems occur due to their mission critical function and visibility in corporations.

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- Users who rely on client/server systems rather than IS departments, are also demanding in regard to rapid response from vendors.

Among other items mentioned, remote diagnostics, technical knowledge and availability of other services stood out as factors that can have an influence on user satisfaction. Remote diagnostics was of particular appeal to mainframe users, and several client/server users mentioned it as a strong interest for the future.

- The availability of other services such as consulting aid on equipment planning, disaster recovery, electronic archiving and operational aid were mentioned by a number of users.

- The availability of multivendor services was also an item of concern to users. Its importance, based on platform size, was discussed in section A of this chapter in relation to user issues, and illustrated in Exhibit V-2.

  Although the services evaluated in Exhibit V-3 can have an important role in user satisfaction, lower pricing and better quality of services remain the leading reasons for change of equipment services vendors as shown in Exhibit V-4.

- Changes of vendor are generally made for a complicated mix of reasons, even when price is identified as the primary consideration.

- In fact, a small increase in price accompanied by poor communication from a vendor, delayed responses to problems, lack of necessary parts over a period of time and an inability to offer multivendor support will often influence a user to change vendors.

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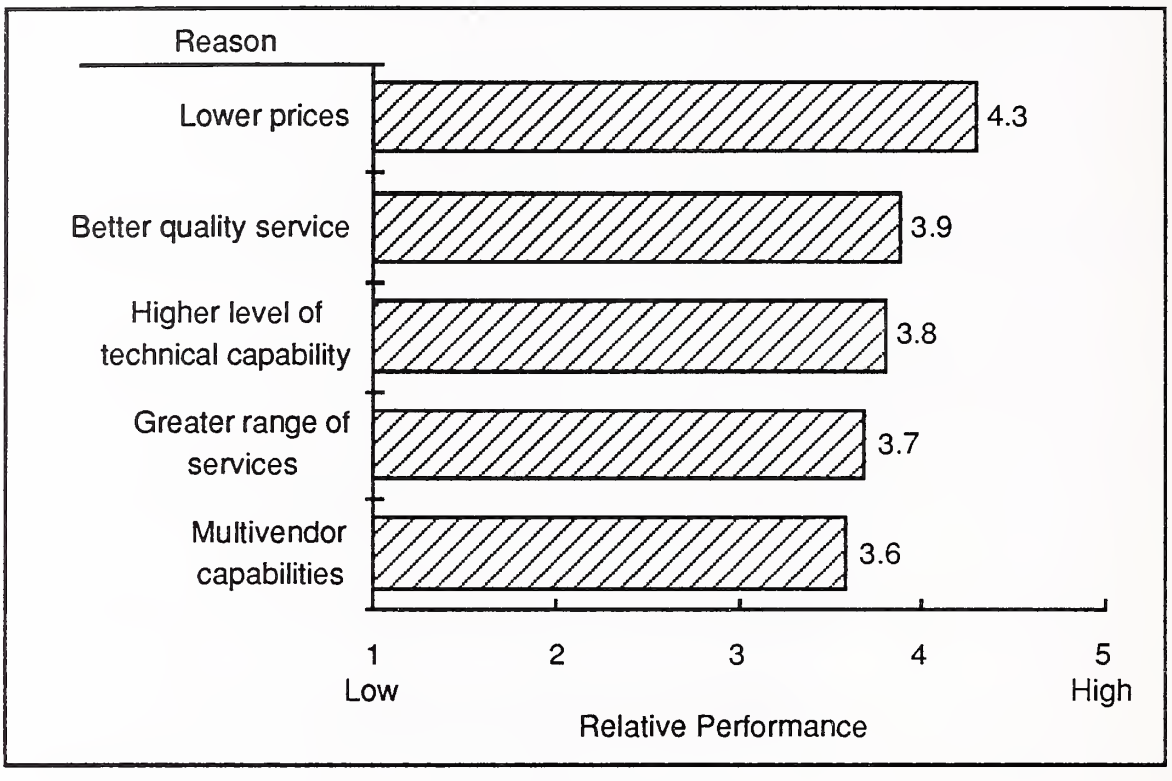
Exhibit V-4

Reasons for Changing Service



Price can be a sensitive issue in two ways. Users can change providers of equipment services based on changes in price. Users can also react to changes in price by adjusting their service level to decrease the impact of pricing changes or put pressure on vendors to restore former prices as shown in Exhibit V-5.

- Only 13% of users state that they will offer no resistance to price increases. This percentage has decreased by almost 30% since last year's study showing a strong market shift toward a less compliant attitude. Strong competitive, cost-reduction pressures in all U.S. market segments drives this tougher stance from users.

- Vendors must carefully consider strategies for increasing prices before making changes in view of the possible strong reactions of users.

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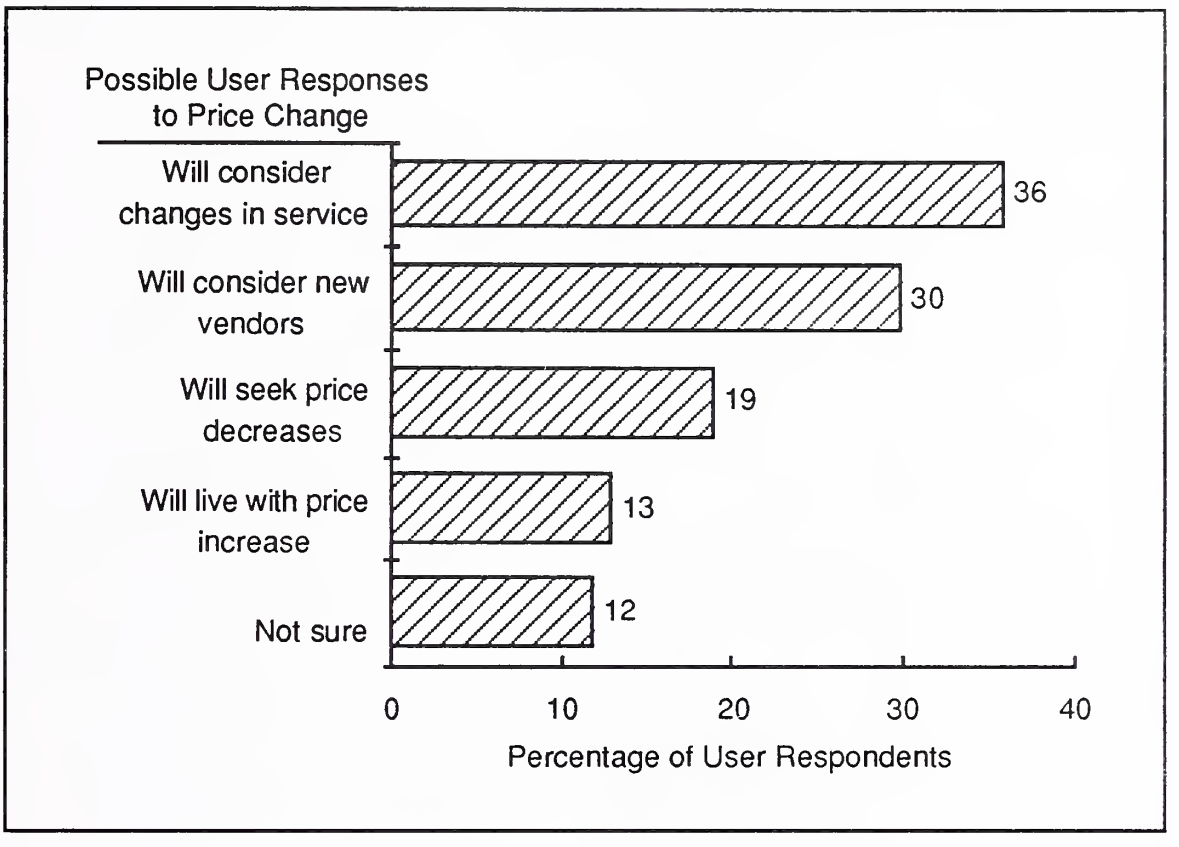
Exhibit V-5

Vendor Price Increases and Responses



B
Vendor Service Issues

Because so many users can be very sensitive to price increases, vendors are seeking real ways to reduce cost, hence, lowering prices enough to win equipment services contracts.

- Consequently, price competition and new competitive arrangements such as prepayment or discount packages are two of the most important market issues to vendors as shown in Exhibit V-6.

- Competitors may also use pricing tactics to try and regain customers, or enter a new segment of the market.

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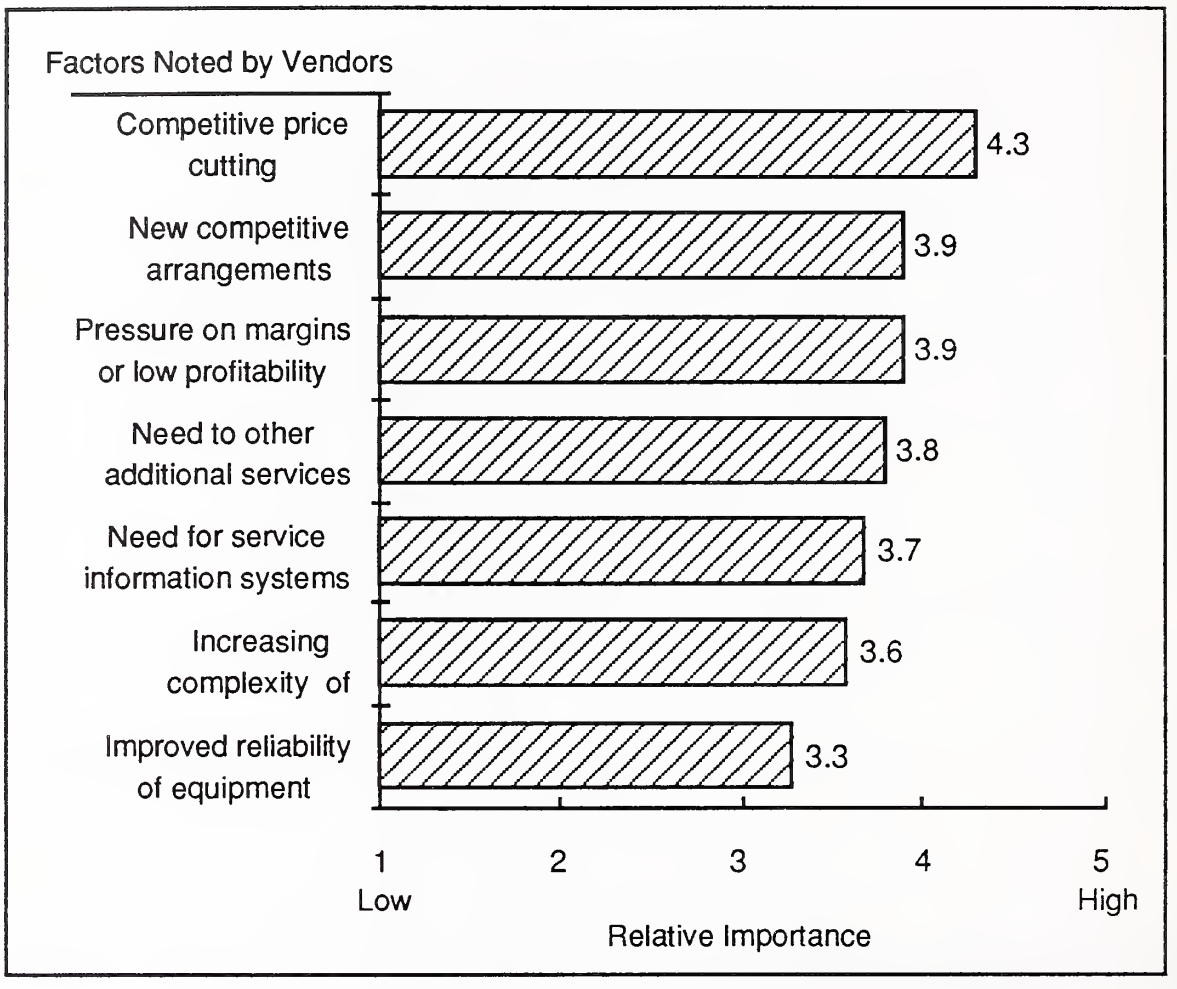
Exhibit V-6

Vendor Market Issues



Price cutting, together with the need to offer additional services and develop new capabilities such as services information systems, has resulted in increased pressure on margins.

One of the other major issues is the steadily increasing complexity of information technology. This is forcing vendors to invest in research and planning, training for personnel and maintenance-related equipment and techniques.

- The result of these investments can be reduced vendor's earnings because they necessarily involve steadily increasing costs.
- Not keeping up with technology can directly lead to a loss of business, because a high level of technical knowledge and competence is a factor that is quite important to users.

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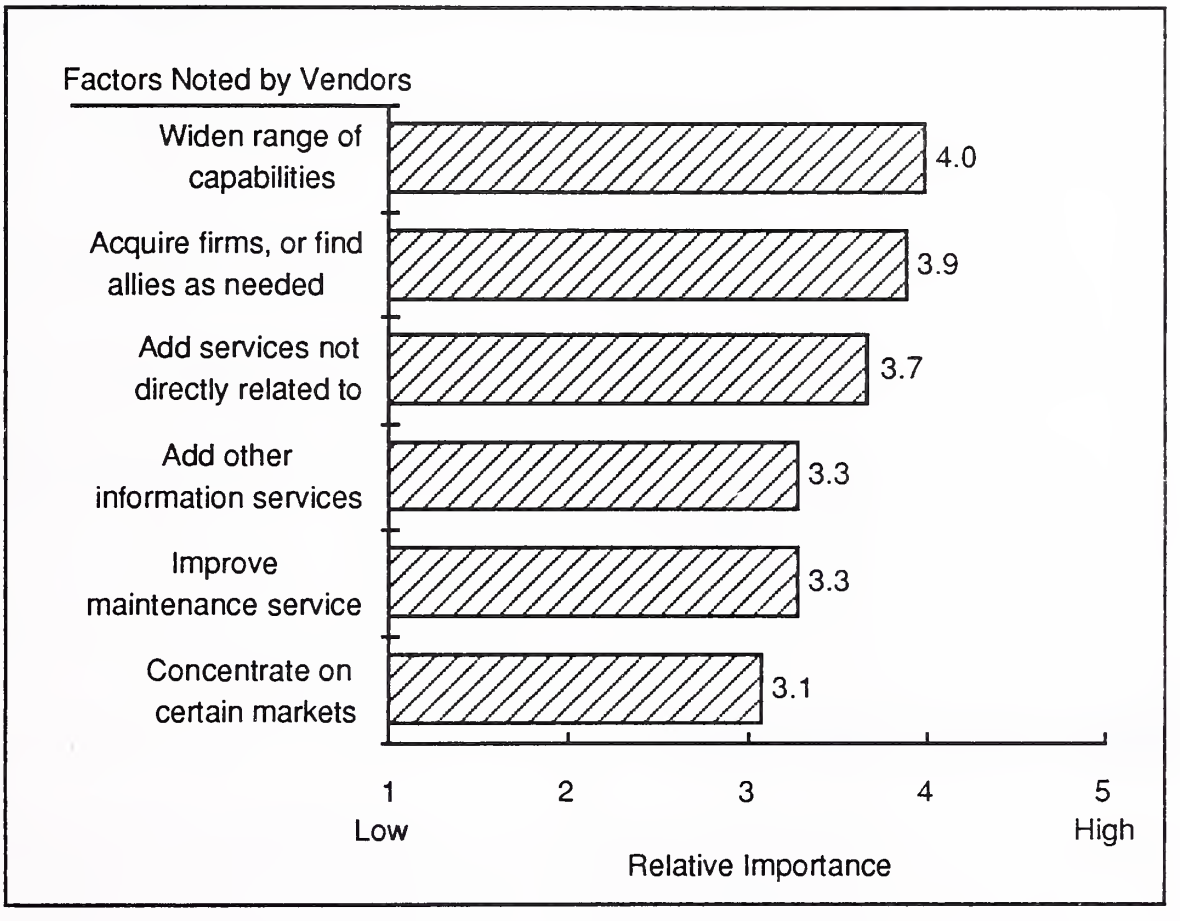
The resulting market situation is highly competitive and leads vendors to consider strategies that can help them to retain customers as well as add new business, as illustrated in Exhibit V-7.

Exhibit V-7

Vendor Strategies to Meet Increased Competition



- Vendors report the imperative need to widen their range of capabilities in order to obtain or retain business. For instance, if users are interested in having one vendor handle all or a good portion of maintenance, multivendor capabilities can be a key offering. Also, network capabilities are required to service most systems being implemented.

- Vendors are attempting to acquire companies or gain allies that can add market share, or deliver complimentary skills that are needed to expand business.

- Equipment services vendors can also add additional skills such as disaster recovery, equipment planning, or operational aid in order to improve volume at existing customers.

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There are other capabilities or services that can be added to enable equipment services vendors to improve their services and demonstrate technical competence. An example of this type of service is the field service information system.

- This service improves availability, remote diagnosis, predictive information and dispatching. It also helps improve the management of maintenance and supply of parts.
- These improvements not only smooth the service delivery to customers, but also help lower and control vendor costs.
- In addition, such services improve planning for the delivery of equipment services, and help track performance.

Service information management system (SIMS) software that will handle these capabilities is now available to equipment services vendors from software vendors such as Sidon Data Systems. A group of vendors has developed capabilities of their own to meet these needs.

C
Impact of New Technologies

The constant addition of technological improvements, from new network capabilities to imaging systems, convince users that equipment services vendors are needed to handle maintenance. However, each improvement creates a new challenge for vendors. Equipment services vendors must maintain sufficient awareness of new developments, and the ability to react rapidly to new technology so they are prepared to respond to requests from customers to add new technology to existing systems being maintained. Some of the current challenges to vendors include:

- The rapidly growing use of client/server technology, that makes use of many types of interconnection of equipment on LANs, WANs and networks.
- The growing complexity of networks and interconnections between networks.

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- The introduction of new equipment and services associated with multimedia, including superservers and interactive networks.

In addition to these developments, vendors report they are preparing to bid on or maintain new imaging systems, parallel processors and RAID or storage systems.

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VI

Conclusions and Recommendations

A Conclusions

The equipment services business is experiencing considerable growth that is partially obscured by the fact that the growth rate for mainframe and mini business is shrinking. Expenditures for large and midrange equipment services are decelerating significantly and will begin to go negative by 1999.

Despite the decline in business for larger equipment systems, equipment services for workstation/PCs and client/server systems will grow at a healthy rate as noted in Exhibit VI-1. This business will be characterized by a high level of competition, however.

Exhibit VI-1

Conclusions

- Shrinking growth rate for maintenance and minibusiness
- Growth rates for workstation/PC services are attractive.
- Competition will increase for workstation/PC business
- Pricing is being used as competitive weapon
- Depots or self-maintenance will be used to lower costs
- Vendors must improve and augment services to maintain or increase market share

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- Vendors will encounter increasing competition in pricing and service levels.
- Vendors must be prepared to invest in staying up to date in the new technologies that will be encountered at customer or prospect sites.

B
Recommendations

Equipment services vendors must analyze their business and decide what services should be continued or discontinued in view of the changes taking place in the market, as pointed out in Exhibit VI-2.

Exhibit VI-2

Recommendations

- Identify services that may have shrinking revenue streams
- Analyze opportunities to lower costs
- Expand scope of services where possible
- Be prepared to repackage and reprice services for competitive advantage
- Analyze/improve quality of services on a regular basis
- Maintain knowledge of new technology

- Revenues for some services and vendors may be under pressure as business for larger platforms decrease in the future. Even the market for midrange services—now the largest market for equipment services—is forecast to slow in growth during the planning period.
- Costs of some services may increase due to the impact of newer technology.

Equipment services vendors must consider expanding their services to meet stated customer's needs or inclinations. When vendors are asked by multiple users whether they supply environmental services, backup and recovery services, operational aid, various types of supplies or consulting support, vendors should respond positively.

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Equipment services vendors must invest in staying up to date in new technology that can provide opportunities to expand business as well as new tools, techniques or products that may reduce costs. In addition, users report that one of the factors used to evaluate vendors is their awareness of new technology.

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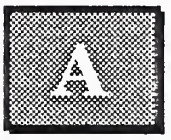

Vendor Questionnaire

Hello, my name is _____. I'm with INPUT in the _____ office. We are updating some of our files on the major firms in the equipment services arena; would you have about ten minutes right now to update the information on your company? (if not, schedule for another time)

First, I'd like to get some background information on your company.

I. General Profile

1. What is your total number of service centers? _____

   a. Locations: _____

   _____

   _____

2. What is the total number of employees in your company? _____

	Current	% Chg. from 1993
a. Total number of maintenance employees?	_____	_____
b. Number of field engineers?	_____	_____
c. Number of bench engineers?	_____	_____
d. Number in field support?	_____	_____
e. Number of maintenance sales staff?	_____	_____

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3. What equipment do you maintain, by OEM vendor? (Circle all that apply)

   a. Mainframes

   b. Midrange

   c. PCs

   d. Workstations

   e. Peripherals

   f. Other

   g. Has this changed in 1994? Yes _____ No _____

      Have you added or deleted any vendors?

      Yes _____ No _____

4. What were the total revenues of your company in 1993, and what do you expect them to be in 1994?

	1993	1994
Total	_____	_____
U.S.	_____	_____
International	_____	_____
U.S. Maintenance	_____	_____
IMO	_____	_____
OEM	_____	_____
Other	_____	_____

5. What percent of your maintenance revenue would you say is from software support as opposed to the delivery of hardware maintenance? _____%

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6. Approximately what percent of your hardware maintenance revenue is derived from the following types of equipment? What percent would you say is from software support?

	%HW	%SW
a. Mainframe	_____%	_____%
b. Midrange	_____%	_____%
c. PC/Workstation	_____%	_____%
d. Peripheral	_____%	_____%
e. Other _____	_____%	_____%
f. Other _____	_____%	_____%

7. Approximately what percentage of your maintenance revenue is derived from maintaining the following manufacturers' equipment?

	Current	% Chg. from 1993
a. IBM	_____%	_____%
b. DEC	_____%	_____%
c. Bull	_____%	_____%
d. Unisys	_____%	_____%
e. HP/Apollo	_____%	_____%
f. Wang	_____%	_____%
g. Data General	_____%	_____%
h. Convergent Technology	_____%	_____%
i. Altos	_____%	_____%
j. MAI	_____%	_____%
k. Apple	_____%	_____%

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	Current	% Chg. from 1993
l. Prime	_____%	_____%
m. Sun	_____%	_____%
n. Compaq	_____%	_____%
o. Other _____	_____%	_____%
p. Other _____	_____%	_____%
q. Other _____	_____%	_____%
r. Other _____	_____%	_____%
s. Other _____	_____%	_____%

8. Could you identify the percent of your maintenance revenue derived from the following industry sectors?

a. Manufacturing	_____%
b. Banking/Finance	_____%
c. Distribution	_____%
d. Medical	_____%
e. Education	_____%
f. Insurance	_____%
g. Transportation	_____%
h. Telecommunications	_____%
i. Business Services	_____%
j. Utilities	_____%

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k. State/Local Government_____%

l. Federal Government _____%

m. Other _____ _____%

9. Has your company been involved in any mergers and/or acquisitions over the last year?

_____

_____

_____

II. Current Services

10. What other services does your company currently offer, or plan to offer in the near future?

	Current	Future	(If current) % of Rev
Planning	_____	_____	_____
Installation	_____	_____	_____
Disaster Recovery	_____	_____	_____
Consulting	_____	_____	_____
Preventive Maintenance	_____	_____	_____
System SW Support	_____	_____	_____
Application Support	_____	_____	_____
Installation/ Deinstallation	_____	_____	_____
Configuration Planning	_____	_____	_____
Help Desk Mgmt.	_____	_____	_____

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Network Support	_____	_____	_____
Other_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

11. How fast are these areas growing? _____%

12. Does your company provide any multivendor or single-point-of-contact services?

_____

_____

13. From your company's perspective, are price levels increasing or decreasing?

_____ Increasing _____ Decreasing

14. Do you believe that the revenues in the maintenance services market will grow at the current rate, or slow down, or grow at an increasing rate? (Circle one)

Current rate / Slow down / Increasing rate

15. What is the primary strategy of your company for the next five years?

a. Concentrate on maintenance

Yes _____ No _____

b. Diversify into other services ancillary to the maintenance function

Yes _____ No _____

c. Diversify into other sectors

Yes _____ No _____

d. Grow by acquisition

Yes _____ No _____

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e. Grow through increased services or expanded customer base

Yes _____ No _____

f. Concentrate on specific...

Industry sectors—which ones?

Yes _____ No _____

Niche markets—which ones?

Yes _____ No _____

g. Other strategies

16. What impact have new technologies in the maintenance services market had on your company?

_____

_____

17. Has your firm implemented any level of a field service information system (FSIS)?

Yes _____ No _____

18. What functions does your FSIS support?

____ Call handling and dispatch

____ Inventory control

____ Customer information file/data base

____ Service billing

____ Remote hardware diagnostics

____ Remote software diagnostics/repair

____ Other functions _____

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19. What hard benefits has your company realized from this system?

_____

_____

20. What soft or perceptual benefits has your company received from the implementation of the FSIS?

_____

_____

21. What do you feel are the most critical issues facing the maintenance industry today?

_____

_____

22. What would you say are the most critical issues facing your company at this time?

_____

_____

Thank you for your time; we really appreciate your cooperation.

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